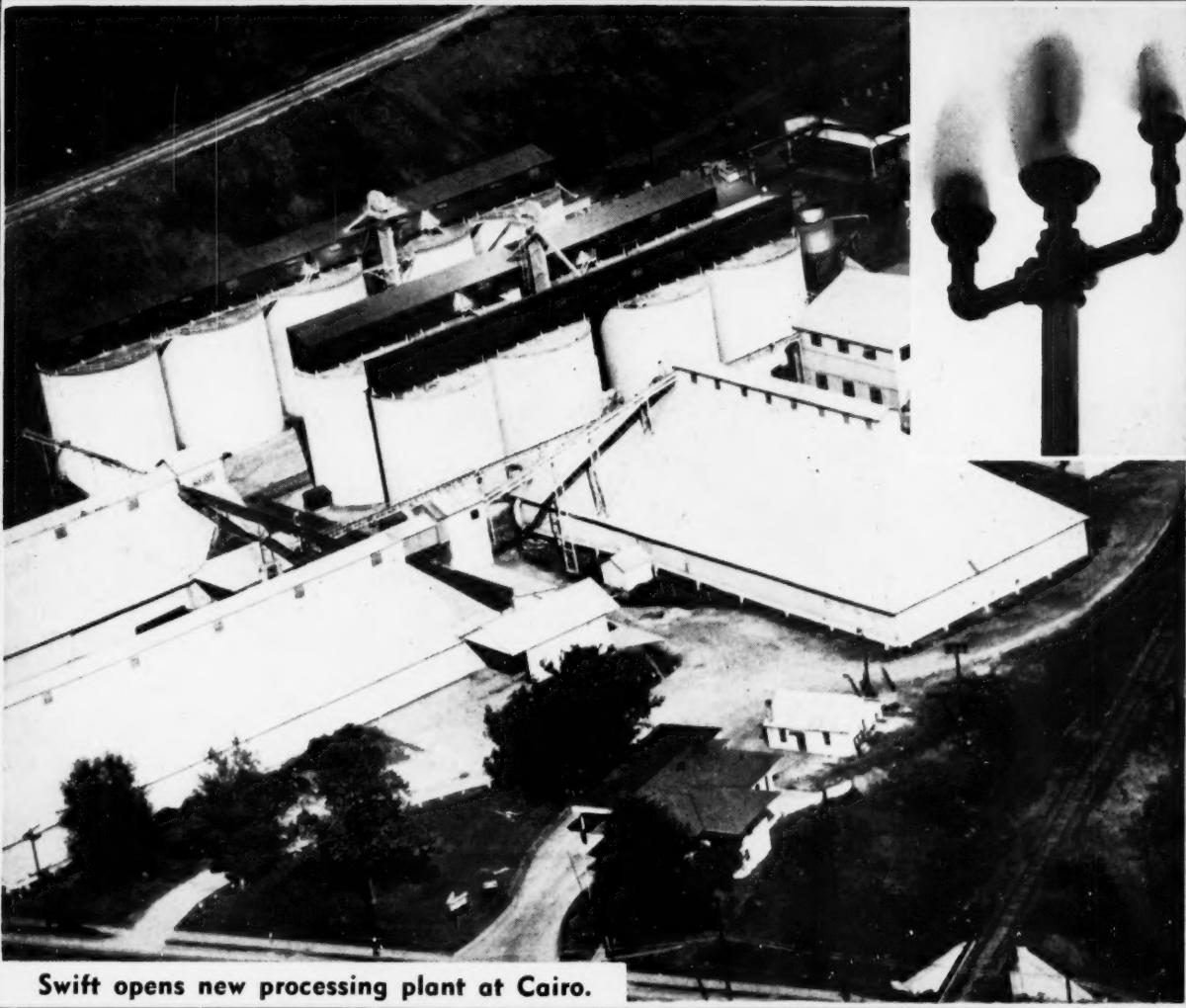


THE

Soybean Digest

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OCTOBER ◆ 1954

VOLUME 14 ◆ NUMBER 12

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THE Soybean Digest

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Vol. 14

October, 1954

No. 12

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THE SOYBEAN DIGEST

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Objectives of the American Soybean Association include the bringing together of all persons interested in the production, distribution and utilization of soybeans; the collection and dissemination of the best available information relating to both the practical and scientific phases of the problems of increased yields coupled with lessened costs; the safe-guarding of production against diseases and insect pests; the promotion of the development of new varieties; the encouragement of the interest of federal and state governments and experiment stations; and the rendering of all possible services to the industry.

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EDITOR'S DESK

By GEO. M. STRAYER

WHAT WILL HAPPEN IN 1955? Since the Memphis convention the Secretary of Agriculture has changed signals on us. At that time it appeared that the major job for 1955 would be that of securing sufficient soybean acreage to fill our needs for domestic processing and exports. Soybeans were classified along with a number of other crops, all of which contributed to the total soil depleting acreage on a farm. Base period was 1953. In that year we produced only 262 million bushels of soybeans.

Already the signals have been changed on us. There is no way of knowing at this date what the 1955 soybean acreage may turn out to be, but with unrestricted planting it is certain the acreage will be as large as that of 1954, and could conceivably go as high as 25 million acres. With a 20-bushel-per-acre average yield that could put us up to 500 million bushels production.

At our Springfield convention in 1950 Clyde Hendrix of Pillsbury forecast that eventually we would be producing and using 500 million bushels of soybeans. Unquestionably we will. But it would be much better if the growth could come gradually, so we might assimilate increasing quantities annually over a period of years.

One measure of acreage will be the support price which is established on 1955-crop soybeans. That support price level will not be announced until the 1954 crop has been harvested, and until we know more about the actual level of that crop and about the disappearance. Also about the cotton crop and the 1955 acreage levels on that commodity.

Correctly planned and handled the 1955 soybean crop can be one which will for the first time supply our needs for domestic processing and for export. Incorrectly handled, the 1955 crop can well turn into a fiasco which will result in large quantities of soybeans going into CCC hands under price supports, in the oil and the meal becoming burdens on the market, and in soybeans for the first time being in surplus and a drug on the market.

It is not too early to start planning for 1955. Our industry is in the enviable position of never having cost Uncle Sam a cent in price support operations. Let's keep it that way. Let's continue to utilize the market-place rather than CCC as our market.

1955 MAY OFFER A REAL TEST For a period of years—almost since the close of World War II—I have repeatedly pointed out on these editorial pages the need for an industry-wide organization within the soybean industry. On several occasions it has appeared to me that during the next crop year we might be faced with the necessity of doing market analysis, promotional and educational work. Each time it has appeared that

production had forged ahead of consumption, and that we might be in marketing troubles.

Up to this point it has not happened. Decreases in cotton acreage, and consequent reduction in cottonseed supplies, have helped us out. Increased purchases and holdings of cottonseed products by CCC have been a factor. Increased livestock numbers have taken more meal. Export buyers have stepped up their purchases of soybeans and of soybean oil.

With the announcement of unrestricted acreage for 1955 we should again be giving consideration to the need for the formation and proper financing of an industry-wide organization, and to the strengthening and proper financing of our own growers group. Until this current year we have moved downward in soybean production since 1951. Now we are on the way up again, and it appears the 1955 jump may be the biggest in history.

Growers, handlers and processors all have a stake in the domestic market. All should be interested in formation of strong groups to represent the specific interests of their own segment of the industry. Even more important, they should be interested in one overall group to do those jobs which only a united front can accomplish.

To the processors of soybeans, and to the handlers of the crop, we again point out that the American Soybean Association stands ready, in its limited way, to participate in such a program. We suggested it in 1947 to the NSPA board of directors. We still believe it is the eventual solution to many of our problems.

DO YOU BELIEVE IN FREE ENTERPRISE? It is too early to guess the final figure on the 1954-crop soybeans. It is too late to try to cover up for early guesses which may have been off base. But when the final story is written it is certain this will be a repetition of past years when some areas have excellent crops and others very poor crops.

One thing is certain—this is the largest crop of soybeans we have ever produced in the United States. Yet even this early in the season there are those who would exercise governmental controls to restrict or ban the exportation of 1954-crop soybeans, based on the plea that the crop is too badly needed at home.

Our industry was built under a system of free enterprise. Let us not disturb the healthy rivalry between domestic and foreign buyers which has been built since 1947, and which has made ours one of the healthiest of America's agricultural industries. Supply and demand still determine price. The world is now too small to ban export movements except in time of dire emergency. We are now, for the first time in several decades, not in a period of such emergencies.

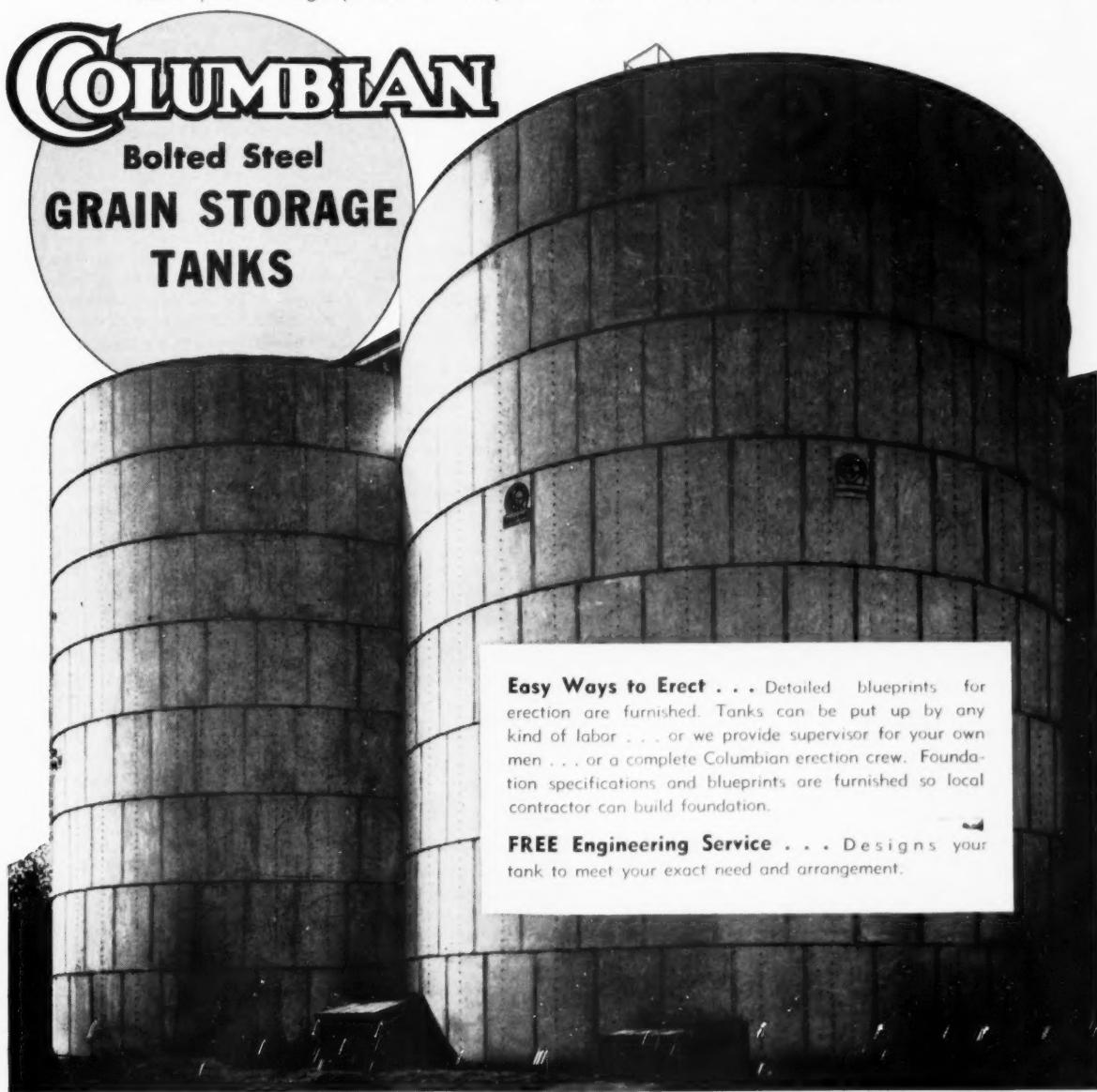
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EXPANDED PROGRAM

Of Varietal Development Work in Soybeans *

BY HERBERT W. JOHNSON

Research Agronomist, Field Crops Research Branch, Agricultural Research Service, U. S. Department of Agriculture.

THE UNDERLYING objective of agricultural research has been to increase production efficiency. The success of this tax-supported and private research is demonstrated by the fact that in 1940 each individual employed on the farm produced enough food and fiber for himself and 11 others; whereas today each farming individual produces enough for himself and 17 others.

Although research workers have found the ways and means of increasing the returns from each unit of land, labor, and capital invested, they cannot claim full credit for the increased production efficiency. Vigorous extension workers have carried the results of research to the farmers and demonstrated how they could be put into practice. Farmers have learned to rely on the recommendations of their experiment stations, and today the findings of research are put into practice quicker than they have ever been before.

The net result is that the backlog of research information that has been accepted by farmers is diminishing steadily. In many cases this situation has resulted in a critical evaluation of our approach to research, which in turn has resulted in greater emphasis on fundamental or basic research in an attempt to insure that we will continue to add to this backlog of research information.

The present intensified program of soybean research began in the U. S. Department of Agriculture in 1936, when the acreage of soybeans harvested for beans in the United States was 2,359,000. Production has increased steadily since that date

and in recent years the acreage harvested for beans has been about six times what it was in 1936. This rapid expansion in soybean production created new problems with diseases and insects, cultural and fertilization practices, and varieties, and our research effort has not kept pace with the increase in production problems. However, increased funds appropriated this year will enable us to expand the research program.

From the beginning of the soybean research program in the Department of Agriculture, the work has been cooperative with state experiment stations and this cooperation has been excellent from the start. Federal funds for extensive cooperative work in all states where soybeans are important have not been available and the major portion of what has been available has been concentrated in a few research centers. Currently these research centers are located in Iowa, Illinois, Indiana, Missouri, Maryland, North Carolina, Mississippi, and California, and at most of these centers an agronomist and pathologist are working as a team on the development of improved varieties and cultural practices.

State Contributions

The state stations where research centers are located contribute heavily to the cost of the program, but the information and new varieties from the program are made available to all states in the region. In addition to the research centers, small cooperative programs are under way in 18 other states. Work on major lines of research in the northern states is coordinated by Mr. J. L. Carter, and Dr. E. E. Hartwig is the coordinator for the southern states.

Although research initiative and originality is encouraged in each individual program, coordination of

the work in all the programs insures against excessive duplication of effort and permits an almost immediate exchange of important information and material.

The research team at the U. S. Regional Soybean Laboratory headquarters at Urbana, Ill., is composed of a physiologist and two chemists, as well as an agronomist and pathologist. In addition to doing research on oil and protein, the two chemists operate the analytical section of the laboratory, which provides analyses for the compositional characters oil, protein, and iodine number for all the cooperative soybean research in the United States.

These compositional characters are important in soybean breeding programs, and the lack of facilities sufficient for analyzing large numbers of varieties and strains has been a bottleneck in breeding progress. The results of breeding experiments indicate that the accurate evaluation of a group of selections or varieties with respect to yield must involve much more extensive testing than the evaluation for compositional characters. Thus, in early generations following a cross, when the small amount of seed precludes extensive testing, it is possible to identify and eliminate inferior selections with respect to compositional characters.

Such elimination would mean that in later generations more intensive selection for yield could be practiced without the difficulties involved in selecting rigorously for yield and compositional characters at the same time. This would enable breeders to evaluate a larger number of selections for yield, thereby increasing the chances of obtaining a selection superior to present varieties. In the past, many high-yielding selections have been carried into advanced stages of testing only to be discarded because they were deficient in some compositional character.

* Presented before the convention of the American Soybean Association at Memphis, Tenn.

The increased funds will enable us to expand research in three general areas, and the first of these is an expansion of the facilities and capacity of the analytical section. This enlarged capacity will enable the agronomists to follow a more efficient breeding system and increase the productiveness of the entire research program.

The second area of expansion is in fundamental genetics and breeding. Increased emphasis on this type of research is necessary if breeders are to continue to be as productive in the future as they have been in the past. The general level of performance of present day varieties is considerably higher than it was only a decade ago, and the development of new varieties that are superior to existing ones is becoming increasingly difficult. Therefore, it behoves us to accumulate basic information that will enable us to do a better job of breeding in the future.

In this research we expect to accumulate information on such problems as: What are the characteristics that indicate two varieties will yield superior progeny if crossed? What easily-measured characters tend to be associated with important characters which are difficult and expensive to measure? What procedure of crossing, selection, and re-crossing is most efficient? How is resistance to important diseases inherited and what economic losses result from a given level of infection of each disease alone and in various combinations? What are the difficulties involved and what breeding materials and procedures should be used should economic conditions indicate an important shift in the relative emphasis placed on oil and protein in our breeding programs? And many other similar problems.

The third area of expanded research is in the evaluation of genotypes in our germ plasm collection for disease resistance and other important characters. The need for this expanded work is clearly demonstrated by the fact that we have no good source of resistance to two of the most important diseases, stem canker and brown stem rot. Also, preliminary evaluations of this collection indicate that it contains an extremely wide range of types with respect to compositional characters,

**Increased funds
will mean an
expanded
research program
by USDA and
cooperating states.**

seed size and quality, height, lodging, shattering, etc. Detailed and accurate information on the selections in this collection may prove to be of immeasurable value to the breeding programs of the future.

In this expanded program, a research center will be established in the northern fringe of the soybean-producing states and one in the southern fringe; the existing centers will be strengthened, chiefly through the addition of subprofessional assistants to work with the agronomists and pathologists; and the work in two of the eighteen cooperating states will be increased.

Although the expanded program will enable us to do a thorough job of evaluating selections in the germ plasm collection with respect to compositional characters considered in our breeding programs, it will not be possible to evaluate them for special properties with respect to oil or protein quality or other chemical characteristics. However, if soybeans that have unusual or specialized chemical characteristics are sought in any of the research laboratories of industry, we will be happy to furnish laboratory samples from selections in the germ plasm collection for evaluation in these laboratories.

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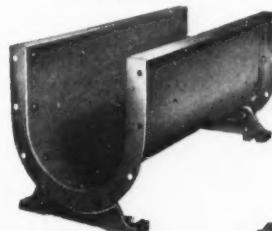
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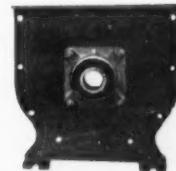


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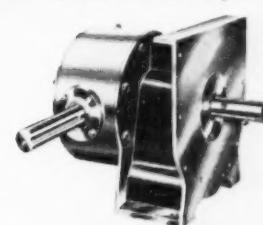
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The New Varieties for the Southern States

BY EDGAR E. HARTWIG¹

INTEREST in soybeans for beans has increased appreciably in the Southern states in the past 10 years. We believe this increased interest can be attributed to greater economic returns resulting from higher yields per acre and that these higher yields per acre were brought about by growers putting into practice the knowledge gained from research developments during the past several years.

To produce a high yield, it is necessary to have good stands of an adapted variety, planted at the correct time, and kept free from weeds. Proper fertilization is essential in nearly all production areas of the South outside of the Mississippi Delta. We have made progress in developing better adapted varieties for the Southern states.

However, before discussing these new varieties, I would like to emphasize some of the cultural practices which must be utilized if these new varieties are to perform properly. We recognize that the superiority of these improved varieties increases as the yield level improves. For example, the Ogden variety shows little superiority over Arksoy if the yield level is only 15-20 bushels per acre. However, when Ogden is yielding at the rate of 45-50 bushels per acre, Arksoy can be expected to yield only 28-30 bushels per acre.

Experimental plots on Coastal Plain and Piedmont soils from North Carolina to Louisiana have shown excellent yield responses from applications of lime, phosphate, and potash. At Baton Rouge, La., over a three-year period, an average yield of 21 bushels per acre was obtained without fertilization. The same variety grown in the same field with adequate lime, phosphate, and potash produced 35 bushels per acre. In North Carolina, the average yield of unfertilized beans in several experiments was 22.0 bushels; those receiving lime alone produced 24.8

bushels; those receiving 0-40-80 alone produced 27.2 bushels; while those receiving 0-40-80 plus lime produced 34.4 bushels per acre.

These results emphasize the importance of a complete fertilization program. Excellent responses to phosphate and potash have been obtained on the prairie soils of Arkansas. No increases have been obtained from fertilization in the Delta areas of Mississippi. In all of these fertility studies, soybeans have been well nodulated and have produced no response to nitrogen fertilizers.

Best Planting Date

Although soybeans can be planted over a relatively long period in the South, they do have an optimum period during which they will give best results. In general over much of the South, there is a tendency to plant too early. Early-planted soybeans are frequently stunted from short day length. They also grow more slowly and must be cultivated more frequently to control weeds. At Stoneville, highest yields are obtained from plantings made from about May 1 to May 25. Yields from planting varieties such as Ogden or Roanoke around June 1 have usually exceeded the plantings made April 10 and have required fewer cultivations to keep them free from weeds. In plantings made as late as June 20, Ogden yields 80 percent as much as when planted in early May and Roanoke 85 percent as much as the May planting.

As we go farther south, the optimum planting date is later in the season. Best results can be obtained in south Alabama and west Florida from plantings made from June 1 to June 15. Consequently, soybeans can very satisfactorily follow white potatoes, small grain, lupines, or crimson clover in those areas where sufficient moisture is available for seed bed preparation and germination of soybeans.

About 1943, the Ogden variety was introduced by the Tennessee Agricultural Experiment Station. About the same time, the program of the U. S. Regional Soybean Laboratory was expanded, which permitted extensive testing of Ogden throughout the Southern region. Its superiority was quickly recognized and Ogden soon became the most popular soy-

bean variety in the South. Ogden was superior to the older varieties in seed yield, seed holding and oil content of the seed. It also had medium-sized stems, was medium short, and stood very well, making this variety well suited for combine harvesting.

The excellent qualities of Ogden in many areas of the South influenced growers in areas such as south Georgia and west Florida to grow it also, although its growth was too short for satisfactory combining. Even though Ogden showed improvements over the older varieties in seed holding, it is weak in this character. In general, it can be expected to hold its seed for two weeks after it has reached combine maturity. Under hot, dry conditions, it will not hold this long. Losses from shattering have been appreciable in the Delta section of Arkansas and Mississippi for the past three years.

Prior to World War II, soybeans grown in the South were sold at a discount because of low oil content. Ogden has an oil content comparable to the better Cornbelt varieties. In 1946, Roanoke, developed cooperatively by the U. S. Regional Soybean Laboratory and the North Carolina Agricultural Experiment Station, was released. Roanoke grows six to eight inches taller than Ogden, matures approximately two weeks later, produces comparable seed yields, has superior seed-holding qualities, and has the highest oil content of any variety grown in the United States. Because of its greater height, Roanoke is better adapted for production on the Upper Coastal Plain and Piedmont soils of the Carolinas, Georgia, Alabama, and Florida. In the Delta areas of Mississippi, large growers can avoid shattering losses by supplementing their Ogden acreage with Roanoke. The two varieties, Ogden and Roanoke, have been our standards for comparison in the development of the newer varieties.

In 1952, the Dorman variety was released as an earlier variety to be grown along with Ogden. Dorman was the first of three varieties released from the hybridization and selection program conducted by the U. S. Regional Soybean Laboratory in cooperation with the 12 Southeastern states. Dorman is approximately 18 days earlier than Ogden and gives comparable seed yields

(1) Research agronomist, field crops research branch, Agricultural Research Service, USDA, working in cooperation with the Delta Branch Experiment Station, Stoneville, Miss., and coordinator of the U. S. Regional Soybean Laboratory Research program conducted in cooperation with the 12 Southern states. Presented before the annual convention of the American Soybean Association.

where it is adapted. Dorman is well adapted on the heavy clay soils of the Mississippi Delta from southeast Missouri to northeast Louisiana; on the bottom lands of the Arkansas River in Oklahoma; and in eastern Virginia. Dorman produces good quality seed with high oil content and holds it seed very well after maturity. Dorman has medium height and heavy foliage. The heavy foliage is beneficial from the standpoint of keeping down late season weeds and grasses in seasons with heavy summer rainfall. Other early varieties had not had this character. Stems of Dorman dry very uniformly at maturity. With S-100, which is of comparable maturity, stems frequently are extremely green when pods are dry. Growing Dorman on the lowest, heaviest soils will increase the chances for harvesting and plowing before the fall rains begin.

Dortchsoy 67 is another new, early variety, approximately five days later than Dorman and 12 days earlier than Ogden, developed by the Dortch Seed Co. In Mississippi Delta tests, conducted on heavy clay over the past three years, Dortchsoy 67 has produced 33.7 bushels per acre as compared to 35.3 for Dorman. Dortchsoy 67 is more subject to shattering than Dorman. While Dortchsoy 67 may equal Ogden in seed-holding if the two varieties were to mature at the same time, it is usually more subject to shattering because of higher temperatures associated with the earlier maturity.

Jackson Variety

Jackson, released in 1953, was the second variety released from the cooperative program in the South and is particularly suited for production in the lower southeast after oats, lupines, or crimson clover. Jackson is comparable in maturity to Roanoke, grows slightly taller, stands better, and has produced slightly higher seed yields. Jackson has a high degree of resistance to the leaf disease, target spot, but is susceptible to bacterial pustule. The added height of Jackson makes it an excellent combine type for the Gulf Coast area. To illustrate how varieties become shorter as they are moved farther south, Jackson has an average height of 48 inches when grown on the Coastal Plain soils of Virginia and North Carolina. In this same area, Ogden averages 36-38 inches tall. However, as we move on south to south Georgia and upper Florida, Jackson averages 32-34 inches tall and Ogden 22-24 inches tall. Under some conditions, Ogden is only 14-16 inches tall. We believe that a variety 32-34 inches tall can be harvested with less loss than a type which averages 22-24 inches tall. While



Edgar E. Hartwig

Jackson gives excellent yields in the Delta area of Mississippi and on the Coastal Plain soils of southeastern Virginia and North Carolina, its production should be limited primarily to soils on which excessive growth is not produced.

This season, Lee, the third new variety from the southern cooperative program, was released. Lee averages five days later than Ogden and is superior to Ogden in seed-holding, disease resistance, and seed yield. Lee is adapted to the same general area as Ogden. Its superiority in seed holding should eliminate losses frequently experienced from shattering. Lee has a growth type very similar to Ogden. Consequently, it will tend to be rather short for the area described for best adaptation of Jackson. Lee is resistant to the diseases, bacterial pustule, wildfire, frogeye, and purple seed stain. It is moderately resistant to the leaf disease target spot.

We believe that because of its seed-holding qualities and resistance to major southern diseases of soybeans, Lee will aid materially in stabilizing soybean yields in those areas where it is adapted. Because of its seed-holding qualities, it will probably not be necessary to grow any later maturing variety where Lee makes adequate growth. In the Delta section, a combination of Dorman and Lee will give an extended harvest period and also fit in well with rice harvesting.

Another new variety developed for a specific purpose is Improved Pelican. This is a rank-growing variety developed for production as a green manure crop in the cane fields of south Louisiana. Unless planted very late, Improved Pelican is difficult to combine because of its rank growth. As soybean production moves south in Florida, the value of Improved Pelican as a seed variety may increase.

Several selections have been made

from the Ogden variety. None of these selections has differed significantly from the Ogden variety. Dortchsoy 31 is a variety comparable to Roanoke and Jackson in maturity, which has proved inferior to these varieties in all production areas.

Over the past several years, through the use of closely-related lines which differ in disease reaction, we have been able to estimate losses from diseases. We are attempting to learn more about the behavior of diseases and the losses which they may cause. The addition of resistance to the major diseases is an important phase of the breeding programs now under way in the Southern states.

The past several years have had rainfall much below normal in many areas of the South. In these dry years, May or June plantings have survived the summer drought much better than the April plantings. This adds another advantage to those mentioned earlier for avoiding extremely early plantings. In 1952 and 1953, yields of 48 and 46 bushels, respectively, were produced on a heavy clay soil at Stoneville with approximately one-third the normal summer rainfall. Root penetration of 40-45 inches appears to have been necessary to make these yields possible.

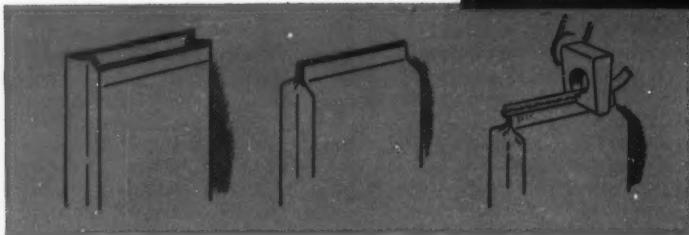
Another cultural practice which has aided materially in giving better drought tolerance is deep tillage on sandy loam soils which have formed a hard pan. At Stoneville, a field in which beans were wilting severely in late June of 1953, no wilting was observed in mid-August in 1954 on the portion of the field which had been chiselled 16 inches deep. An adjoining untreated area was severely wilted in early July.

In Mississippi, plantings made in May have produced consistently better results than early April plantings. However, many growers like to plant in early April because they believe they can get better stands. The heavy clay soils are difficult to work. This past season, excellent stands were obtained without rain by using a double disk opener rather than the conventional opener. A spring-tooth harrow was substituted for the disk in preparing the seed bed to avoid getting an extremely cloddy condition.

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AMERICAN SOYBEAN ASSOCIATION

Late News

Published 32 times
yearly as a service
to the soybean
industry.

HARVEST OUTLOOK

Vol. 2, No. 19

Hudson, Iowa, Oct. 6, 1954

Late reports on the soybean harvest indicate:

- 1—Combining in northern areas will last well into October, as harvest has been delayed due to wet weather. Even in Illinois combining will not be completed until mid-month unless there is exceptionally favorable weather.
- 2—A bad weed problem has developed in many northern areas
- 3—Farmers are holding more soybeans than ever before but watching the market closely.
- 4—Yield reports are mixed with some tendency to raise earlier estimates.

CROP MOVEMENT

Observers as of this date estimate combining as 70 to 75 percent completed in Illinois (Wall Street Journal says 90 percent), Indiana 50 percent, **but only 5 to 10 percent in Iowa, Minnesota and Ohio.** Rains were general in Iowa and Minnesota and there was little combining in these two states the last week in September. Rains were also delaying harvest in some Illinois areas.

With favorable weather peak of the crop movement was expected in Minnesota by Oct. 15, about a week later than Iowa, according to Fred Hafner of General Mills, Inc. Peak should come in Ohio by about Oct. 11. Harvest was expected the first week in October in South Dakota with limited frost damage there.

K. E. Beeson, Purdue University, reports yields are good in central western Indiana but **weeds, and especially giant foxtail, had been slowing combining.** Combining was under way before Oct. 1 in Hardin, Marion and Wyandot Counties, Ohio. Harvest was well along in Kansas by late September. Combining has been under way in Missouri since mid-September, and **will reach the peak in other parts of the mid-South by late October.** Some beans have moved in Ontario and harvesting was expected to be general by Oct. 10.

QUALITY OF CROP

Quality of beans delivered to date has been generally good to excellent in the upper Midwest, and poor to fair in southern drought areas. Good reports come from Iowa, Minnesota, Illinois, Indiana, and Ohio. Quality of beans in dry area south of Decatur is reported as better than expected with beans good size.

But a bad weed problem has developed particularly in northern Iowa, Minnesota and northern Ohio due to late rains and fact that frosts have not been heavy enough to stop weed growth. Weeds, added to high moisture content, may lower quality in beans still to be harvested.

We have reports of poor quality in southwestern Indiana, central Arkansas and Dyer County, Tenn. **Foreign material content of Missouri beans is reported as generally high.**



FARMERS WILL STORE

There is a marked increase in storage of the 1954 crop as compared with past years, **with far more soybeans being stored on farms than ever before.** But farmers apparently were watching the market closely and amount stored may be tied to prices during the next few weeks.

Illinois reports are that 50 to 75 percent of the crop is being stored. (May be less if the market goes up.) J. E. Johnson, Champaign, Ill., says there has been very light selling of the 1954 crop in his area. And Otto Langfelder, Illinois Soy Products Co., Springfield, reports most farmers have been reluctant to sell beans. Indiana reports are that 50 to 75 percent will be stored.

Iowa and Minnesota beans will be stored to the limit of storage capacity, and **farmers will show little tendency to sell until storage is filled.** Hafner of General Mills believes. He looks for about half of the 90 million bushels expected in these two states to be sold. Crops may move so fast it will be hard to handle in these two states if the weather turns good, with resulting weak market. **A strengthening factor may be that the harvest peak won't come until after it is past in Indiana and Illinois.**

1954 CROP YIELDS

Leslie Commodity Letter estimated the national crop at 328.3 million bushels Oct. 1, or 3.6 million bushels above the month-earlier estimate of the U. S. Department of Agriculture. C. M. Galvin's Oct. 1st forecast is 332-million. The Oct. 1 USDA estimate will be available by the time you receive this issue.

Most northern yield estimates are optimistic, with reports of better than expected yields in southern Iowa and central Illinois. Beeson of Purdue says the yields in the poorest fields in the drought area of southwestern Indiana looked like 10 bushels, the best 40. Yields are possibly 5 bushels higher than last year in this area. Yields are estimated at 20 to 25 bushels in northwestern Ohio.

But reports are less optimistic as you go south. Yields have been generally disappointing in Kansas. L. M. Humphrey at Scott sees central Arkansas yields at 60 percent of 1953, and the Weather Bureau reports the state's yield as very poor. With extensive drought in Dyer County, Tenn., yields there are as low or lower than 1953. Missouri yields are spotted—12 to 20 bushels—though some are better than expected earlier. And Mark H. Brown reports yields better than looked for at Lake Providence, La., about 20 bushels per acre on double the acreage of last year.

THE 1955 PROGRAM

Present Washington thinking is to lower supports on soybeans and other non-basic crops—or to throw them out entirely in 1955. This is tied in with Secretary Benson's action eliminating total acreage allotments which will leave soybeans without any acreage restrictions at all next year. **The thought is to avoid a huge increase in acres that might mean a big surplus of soybeans to be taken over by the government.**

	Cash price to farmers for No. 1 soybeans Sept. 29	Price to farmers for No. 2 soybeans Sept. 29	Price to farmers for bagged soybean oil meal Sept. 29
Ark		\$2.35	
Ili.	\$2.46@\$2.50		\$75@\$100
Ind.	2.41@ 2.43	2.44	92
Iowa	2.41		94
Minn.	2.26		90
Mo.	2.31		90.50
Ohio	2.40@ 2.41	2.38	86
Tenn.	2.30		
Ontario		2.40	

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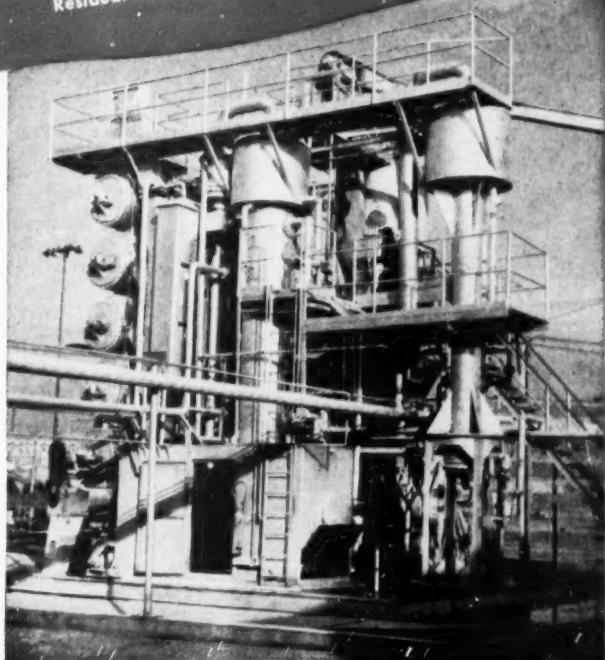
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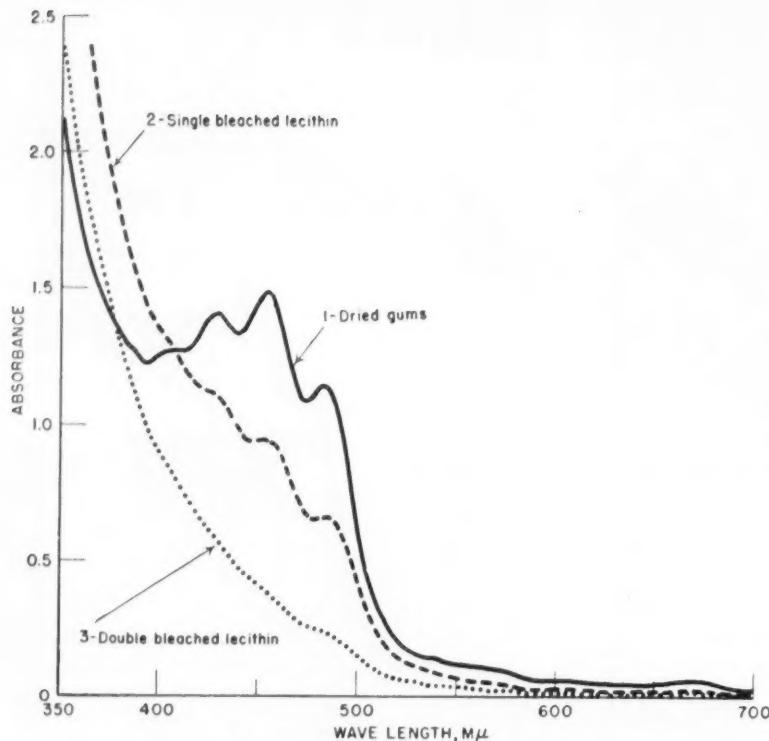


Figure 1. Absorption spectra of lecithin solutions in CCl_4 (5 g./100 ml.) measured in 1-cm. in Cary recording spectrophotometer.

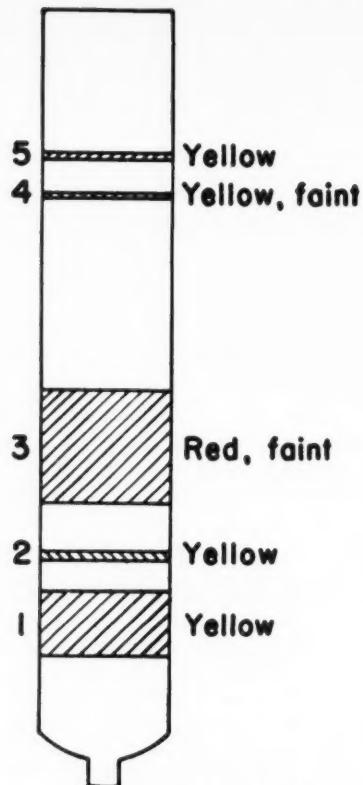


Figure 2. Pattern of bands formed by chromatographing carotenoid pigments from lecithin on MgO with dichloroethane as solvent.

RESEARCH DEVELOPMENTS

*at the Northern Utilization Research Branch **

A review of the work on soybean lecithin
at the Peoria Laboratory

By J. C. COWAN

Northern Utilization Research Branch
Peoria, Illinois

AS MOST of you know, the U. S. Department of Agriculture has undergone some reorganization since the last meeting of the American Soybean Association. Consequently, I am reporting to you today about "Research Developments or Studies at the Northern Utilization Research Branch" rather than the Northern Regional Research Laboratory.

* Presented at the annual convention of the American Soybean Association in Memphis, Tenn.

Last year, we reported on three phases of our work; Gelsoy, global spread, and soy flour (1). Most of the work done on these three subjects is now complete. Although there is much that could be added about these projects and much more I could tell about other work, I wish to spend most of my time reviewing our work on soybean lecithin, or soybean gums, or phosphatides.

Production and Composition

Before World War II, soybean gums were produced on a limited scale for a wide variety of uses.

After the war, many concerns, attracted by the comparatively high price of soybean phosphatides, and the demand of some edible oil refiners for degummed oil, installed degumming equipment. Prices dropped so that crude, unbleached soybean phosphatides were cheaper than oil, whereas formerly they had sold at two or more times the price of the oil. Naturally, with this increase in availability and lower price, new uses were found and production has climbed from 8 million pounds in 1947 to 25 million in 1953 (2).

The shift from continuous screw presses to hexane extraction of soy-

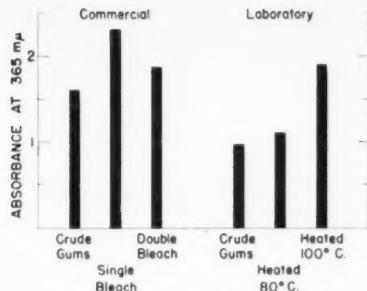


Figure 3. Brown color of soybean gums.

beans has also aided this increase since superior phosphatides can be obtained from crude extracted soybean oil. The production figures for soybean phosphatides over the last several years are shown in Table I.

Lecithin is used in a wide variety of industrial operations, from assisting in the grinding of pigments for protective coatings to compounding of medicinals. However, my purpose is to review some of our fundamental work on this poorly-defined natural product.

Table I Soybean Lecithin Production Pounds	
1947	8,000,000
1948	8,000,000
1949	12,200,000
1950	14,900,000
1951	21,300,000
1952	20,500,000
1953	25,100,000

Textbooks of 10 years ago described soybean phosphatides as composed of 65 percent cephalin and 35 percent phosphatidyl choline. Soybean lecithin of commerce contains 35-40 percent oil and 60-65 percent phosphatides. If the phosphatides are produced in sealed centrifuges operating under pressure, the phosphatide content may run as high as 80 percent or more. Now one of the important aids to utilization research is information on the actual composition of the material.

Although previous workers had reported the existence of other phosphatides besides cephalin and phosphatidyl choline, we were able to make countercurrent distributions between immiscible solvents to show the quantitative relationships between these phosphatides. This work was made feasible by the development of equipment at Rockefeller Institute for Medical Research, equipment which permitted the ready and repeated distribution of almost identical compounds between two immiscible solvents.

By fractionating soybean phosphatides into two major fractions, alcohol-soluble and alcohol-insoluble, and subjecting each fraction to distribution between aqueous methanol



Figure 4. Unbleached soybean gums: Laboratory (left) and commercially (right) prepared.

and hexane, we have shown the soybean phosphatides are comprised of four major components: cephalin, phosphatidyl choline, and two phosphoinositides.

This distribution is effected by a process of liquid-liquid extraction as follows: The lower half of the tubes are filled with methyl alcohol and the upper half with hexane. In addition, one tube contains the phosphatide. The apparatus is tilted back and forth a number of times to mix phosphatides, alcohol, and hexane. After a time for settling, the upper part is moved one interval or tube and the process repeated until 29 separations are made. The solutions in the tube are then evaporated and analyzed. You may be interested in seeing the curve of the actual distribution of the alcohol-insoluble phosphatides or phosphoinositides.

Sources of Color

Because soybean lecithin is used in many products which are light in color, such as foods and protective coatings, the color of soybean lecithin is of some commercial importance. Much of the commercial product is given a light to vigorous treatment with hydrogen peroxide to reduce the color. This bleaching can become a hazardous operation but usually it is not. It destroys or removes the carotenoid pigments which absorb light strongly at 446 millimicrons as shown in Figure 1.

The unbleached or dried gums, 1, show a characteristic light absorption curve for carotenoid pigments with three peaks, the major peak being at 446 millimicrons. A single commercial bleaching reduces this color and a second bleaching removes most of it. Note in the curve for the single bleached lecithin, 2, the presence of slight humps or peaks. In 3, the curve for commercial double bleached, these peaks are practically absent indicating that commercial bleaching does effectively remove the carotenoid pigment. Careful examination of these carotenoid pigments by chromatographic procedures gave five bands. Figure 2 shows the pattern of these bands.

Table II Composition of Soybean Phosphatides	
Cephalin	31
Phosphatidyl choline	29
More alcohol-soluble phosphoinositides	27
More hexane-soluble phosphoinositides	13

Band 1 has been identified as lutein by mixing it with known lutein obtained from spinach and making a chromatogram. This discovery came as a surprise since others had reported carotene and no lutein. Band 2 was not identified and band 3 appears to be zeaxanthin. No carotene was found in this particular sample of soybean gums (3).

Figure 3 shows that despite a double bleaching, the absorbance or the color at 365 millimicrons can be very high. One sample of commercial soybean gums had an absorbance at 365 millimicrons of 1.6. Note that the first bleaching actually increased the absorbance at 365 millimicrons to 2.3, i.e., the brown color increased. Even the second bleaching gave a

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value of 1.8 for brown color, which is above that of the original gums. Obviously, bleaching would not be a preferred method for removing brown color from gums after color is developed. Naturally, variations occur in a commercial operation and these samples may vary.

This brown color is formed possibly by the reaction of small amounts of reducing sugars or other aldehydes in the phosphatides with amino groups present in the cephalin and phosphoinositides containing an amino group. This reaction is known in the food industry as the non-enzymatic "browning reaction."

Relation of Browning to Processing

All commercial samples of unbleached soybean phosphatides that we have seen have a brown color. This color arises in the processing of the oil during the removal of hexane from the miscella and possibly in the removal of water from the crude lecithin.

In Figure 3, we have samples of gums produced in the laboratory from commercial hexane miscella. The crude gums have not been heated in processing, the next sample to the right has been heated three hours at 80° C., and the final sample has been heated three hours at 100° C. The wet gums have an absorb-

ance of 0.96 while the gums dried at 100° C. have an absorbance of 1.8 which is approximately equal to the absorbance for commercial crude gums of 1.6. Examination of the absorbance values for these six samples shows that heating always gives rise to brown color.

Figure 4 shows the actual differences in shades. The gums on the left are very light yellow, typical of unheated purified gums, while the darker gums on the right are typical of crude commercial gums. When commercial crude oil was used to prepare crude gums, the resulting product had a deep brown color. No major increase in color was observed in the subsequent commercial dehydration step. However, laboratory studies showed that commercial dehydration could give rise to brown color if considerable color had not already been developed during heating to remove hexane from the miscella.

As you have seen in pictures and in figures showing absorption, once this brown color is formed, it persists throughout the remaining steps in processing. Brown color is developed in the miscella and most of it goes with the phosphatides on degumming. When the phosphatides are heated to remove water, more brown color may be produced. In-

deed, much of the treatment which the gums receive deepens the brown color and bleaching with peroxides will not remove all of it.

Consequently when light-colored phosphatides are desired, it may be necessary to control formation of brown color throughout the processing. The control required is mainly low temperatures during processing.

This formation of brown substances can be followed readily by measuring fluorescence. Indeed, it is a property of these brown substances to fluoresce when exposed to sunlight or ultraviolet light. This fluorescence can be detected before the human eye can detect brown color. We have developed a procedure for measuring this fluorescence in gums and will present it before the meeting of the American Oil Chemists' Society in Minneapolis this fall (4).

Future Work

Last January we accepted delivery of a new Craig-Post countercurrent distribution apparatus which will be of considerable assistance in our fundamental studies. We expect this equipment will assist us materially in determining more about the complex mixtures of phosphatides and oils. With it we have already made new discoveries regarding the structure of linseed oil and are using it in our soybean studies (5).

Our budget for this fiscal year has been increased to extend our studies on the conversion of fatty acids of soybean oil to new and industrially useful chemical derivatives. We have been hard at work recruiting people to do this work. A contract on drying oil uses at Battelle Memorial Institute during the past year has shown one major route for expanding uses of soybean and other vegetable oils is along these lines of new chemical derivatives.

Space and time do not permit me to discuss the other work which our laboratory is effecting on soybean utilization. However, you may be assured that we are pushing vigorously our work in flavor stability, toxicity of trichloroethylene-extracted soybean oil meal, properties of soybean protein, oxidation of fatty acids, and compositional studies.

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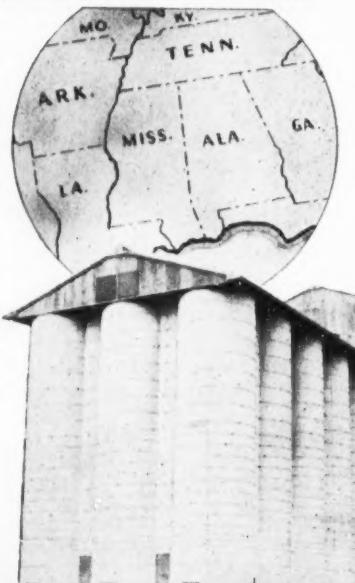
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Says Japan May Take 25 Million Bushels in 1954

PROSPECTS are excellent for a record high level of exports of soybeans to Japan during the current marketing season (Oct. 1 to Sept. 30) if Japan cannot obtain Manchurian soybeans in substantial quantity, according to a U. S. Department of Agriculture marketing study. Manchurian soybean exports in recent years have gone mostly to non-Asian countries.

The study was conducted in the Far East by John S. Burgess, Jr., Foreign Agricultural Service marketing specialist, to determine possibilities of increasing exports of U. S. fats, oils and oilseeds, and to ascertain the actual and potential competition faced by the United States in Far Eastern markets for those commodities.

The FAS marketing specialist has reported that if a substantial volume of Manchurian soybeans should be available from Communist China they would be attractive to Japan because of their high quality. Soybean quality is important in the Japanese market, as the beans are widely used in manufacture of processed foods.

Japanese oilseed processors have not been satisfied with the quality of soybeans imported from the United States in recent years. In addition to a relatively high percentage of foreign material which they have considered objectionable, they have complained that many shipments of No. 2 yellow beans have contained an excessive amount of green soybeans. The presence of morning glory seed in some shipments has caused difficulty, especially in the case of beans imported for edible purposes.

Mr. Burgess states that while it is questionable whether the United States can compete successfully on a price basis with Communist China in supplying soybeans to Japan because of shipping costs and possibly other factors, every effort should be made by the U. S. soybean trade to retain as much of the Japanese market as possible by furnishing beans of the quality desired.

Formosa also will be an important customer for U. S. soybeans this year, and there is a possibility of sale of some beans to Honk Kong, the FAS study shows. Preliminary estimates indicate that U.S. soybean exports to Japan, Formosa and Hong Kong could total about 25 million bushels valued at \$70 million at current prices during the current marketing year.



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PURDUE University Varsity Men's Glee Club (top) entertain the 14,200 people attending the barbecue at McMillen Park.

GIRL SCOUTS of Fort Wayne pass through the crowd distributing 75th anniversary birthday cakes as a "thank you" for Camp McMillen, built for them by Mr. and Mrs. Dale McMillen, Sr.



DEVOURING boxed barbecued beef and chicken — along with 14,200 other people—are (l. to r.): Mrs. Ersel Walley, Fort Wayne; Mrs. Chester Biddle, Remington, Ind.; Ersel Walley; Mrs. George Strayer, Hudson, Iowa; and Chester Biddle.

THE BIGGEST day in the history of Central Soya Co. was celebrated in Fort Wayne, Ind., Sept. 16. The occasion marked the 20th anniversary of the company and the 75th birthday of its founder, Dale W. McMillen, present chairman of the board.

A colorful afternoon and evening program paid joint tribute to the accomplishments of the company through its 20-year history, and to the leadership of its founder. In those 20 years the company has grown from a little \$125,000 concern to a firm now worth \$37 million.

Officers, employees and salesmen of the company joined with dealers, Fort Wayne civic and business leaders, and 175 agriculture faculty members from Land Grant colleges

Central Soya's 20th Birthday Celebrated

in 18 states, to pay tribute to Mr. McMillen and the position of leadership the company has achieved under his guidance.

More than 14,000 invited guests enjoyed the big barbecue at McMillen Park, where they consumed something like 7,000 pounds of beef and 14,400 halves of Triple-A grade chickens—certainly the biggest barbecue event ever held in Fort Wayne!

In recalling the 20-year record, Dale W. McMillen, Jr., president, stated: "The beginning at Decatur, Ind., in 1934, was small. Company facilities totalled 450,000 bushels of storage, six expellers for soybean meal and oil production, and two single-batch mixers to manufacture feed. The record of the company since that humble beginning has been one of constant progress and expansion.

"There are now five plants in operation, and soon there will be a sixth. The original and still largest plant is at Decatur, Ind. Next came a plant at Gibson City, Ill.; another at Harrisburg, Pa.; still another at Marion, Ohio; and finally an ultra-modern plant at Memphis, Tenn.

"The sixth plant, now under construction at Chattanooga, Tenn., will combine grain storage, feed manufacturing and soybean processing facilities.

"Basically, the company's growth has resulted from two concepts held by its founder. Mr. McMillen believed that soybeans would one day be the chief source of proteins used in poultry and livestock rations. He also believed that concentrate feeds were the answer to maximum production efficiency and therefore the greatest returns for the farmer."

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P & G Buys Victory Mills

NEIL H. McELROY, president of the Procter & Gamble Co., Cincinnati, Ohio, has announced that arrangements have been made for the purchase of the assets and properties of Victory Mills, Ltd., of Toronto, Ontario, through a new Canadian subsidiary company.

The principal business of Victory Mills, Ltd., is crushing soybeans and marketing soybean oil and meal. The mill has the capacity to crush 12 million bushels of soybeans annually.

Procter & Gamble's new subsidiary, which is making the purchase, is to be named Victory Soya Mills, Ltd.

In announcing the formation of this subsidiary company, Mr. McElroy said, "Vegetable shortening and margarine are enjoying increased popularity among Canadian housewives. This has resulted in a large growth in sales of the edible fats manufactured by Procter & Gamble of Canada, Ltd., which has been established in Canada for almost 40 years.

"The popularity of our products has caused us to look for an estab-

lished source of oil for our production."

Mr. McElroy indicated that soybeans will be bought to the maximum extent possible from Canadian growers. The size of the soybean crop in Canada has increased from 220,000 bushels in 1940 to a crop of 4,406,000 bushels in 1953.

THE COVER PICTURE

A new processing season was under way in September as the record harvest of 1954 began rolling through the combines.

Its start was announced by a prolonged blast of the steam whistle (inset on front cover) at the Swift & Co. mill at Cairo, Ill., Sept. 14. Cairo's residents regard Swift's noon and midnight whistles as their personal timepiece and set their clocks by it.

The roar of activity now evident at Swift & Co. is typical of processing plants all over the bean belt. The industry as a whole is looking forward to the biggest season ever.

New N. O. Facilities

THE PORT COMMISSION is preparing to install truck unloading facilities at the Public Grain Elevator, it was announced by W. B. Fox, president of the Board of Commissioners of the Port of New Orleans. These new unloading facilities will round out the Public Grain Elevator for serving all forms of transportation for bulk grain and soybeans. In the design for the new elevator dedicated last November, provision was made for these installations as soon as the demand required it.

It was pointed out by Mr. Fox that the movement of grain by truck has become so heavy to Texas ports that it has brought about a reduction in rail rates on export grain to those ports by the Southwestern rail lines.

The Grain Elevator at Mobile is equipped with truck unloading facilities and the recently announced construction of the elevator in Baton Rouge will be so equipped. "It is essential, therefore," said Mr. Fox, "that the Port of New Orleans provide the same facilities."

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CROP REPORT

Crop Improves Further

COMBINING WAS in full swing in most of the northern commercial soybean area by the last week in September. But more dry weather was needed to complete maturity many places—especially in Iowa, Minnesota and North Dakota—and it was expected that harvest would last well into October in the North.

First yield reports from the Mid-south and Kansas indicated poor quality and low yields. But in general yields were high in the more northern areas, as expected.

Quality of early harvested beans was reported as good on the whole outside the drought area. Illinois moisture reports were 9 to 12.5 percent. There was some difficulty with foreign material and cracked soybeans in Illinois.

Apparently there was a strong tendency on the part of growers to hold their beans, probably in larger volume than ever before.

U. S. Department of Agriculture raised its national 1954 soybean crop forecast 21 million bushels, to 325 million bushels Sept. 1. This compares with 262 million bushels produced in 1953 and the previous record of 299 million bushels.

The record production is due to the large acreage to be harvested for beans. The indicated U. S. yield of 18.7 bushels per acre is lower than any year since 1947 except 1953.

Growing conditions during August in the main soybean growing area

were generally favorable. August rainfall largely relieved the drought that had developed and helped maintain or improve the generally excellent prospects to the North. But production prospects in several South Atlantic and South Central states, where little relief was received from the drought, declined further during August. The drought continued severe along the East Coast, Virginia, the Carolinas, Georgia, Alabama and Florida.

Canada's soybean crop is forecast at 5,334,000 bushels on the basis of Sept. 15 indications, according to the Dominion Bureau of Statistics.

The indicated output is up more than one-fifth from last year and again establishes a new record.

Illinois. J. E. Johnson, Champaign (9/19): Yields to date much better than expected. Range is from 28.6 to 35 bushels. Moisture reports from local elevators very satisfactory. Some difficulty in foreign material and cracks.

Albert Dimond, Lovington (9/20): Yield so spotted it is hard to tell but will be down from last year. Strongest tendency to store beans I have ever seen. There is a lot of farm storage in this area now. Elevators have taken to advertising for storage. At Lovington last week harvest was well under way and 85 percent of what came in went into storage.

Indiana. Clark F. Baker, Indiana-

apolis (9/21): Harvest in full swing everywhere next week. Total production up about 10 percent. Farmers state they intend to hold all beans possible off the market as they believe a price rise in the next 90 to 120 days will pay them well.

Minnesota. John W. Evans, Montevideo (9/21): Weather cool and much moisture. Harvest will begin in 10 days. Perhaps 60 percent will be stored on farms. Yield outlook good.

Missouri. Carver Brown, Laddonia (9/21): Hot and dry last 30 days. Yield outlook 10 to 15 percent less than 1953, 10 percent less than my last report. Crop movement began Sept. 15. Quality fair to good. Twenty-five percent will be stored.

North Dakota. Floyd Poyer, Amenia Seed & Grain Co., Amenia (9/20): Weather and moisture conditions good, but frost predictions. Crop movement will begin in three weeks. Yield outlook 20 bushels, better than 1953. One hundred percent will be stored.

Ohio. D. G. Wing, Mechanicsburg (9/21): Maturity about normal except for weeds which will hold up combining. Crop movement will begin about Oct. 5-10. Yield outlook 10-15 percent above 1953. About 70 percent will be stored.

Oklahoma. Ralph S. Matlock, Oklahoma A & M, Stillwater (9/21): Extremely hot and dry. Crop movement will start Sept. 25. Quality poor to fair. Yield lower than 1953 by 50 percent in most areas.

Ontario. K. A. Standing, Ontario Soya-Bean Growers' Marketing Board, Chatham (9/20): Maturity a little later than normal. Moisture conditions much improved though too late to affect crop. Few lots moved around Sept. 15. Quality good. Expect larger total crop than 1953.

State	SOYBEANS FOR BEANS (as of Sept. 1)					
	Yield per acre		Production			
	Average	Indicated	Average	Indicated		
	1943-52	1952	1954	1943-52	1952	1954
	Bushels		Thousands bushels	Bushels		Thousands bushels
N. Y.	16.2	16.0	15.0	122	80	105
N. J.	17.7	18.0	18.0	281	486	558
Pa.	16.2	17.0	17.0	427	323	289
Ohio	20.1	20.5	22.0	20,674	21,238	27,094
Ind.	20.7	21.0	24.0	31,468	36,855	45,264
Ill.	22.7	20.5	21.0	80,946	76,896	89,187
Mich.	18.3	19.0	21.0	1,736	2,090	2,688
Wis.	13.8	14.5	14.5	526	812	1,030
Minn.	16.3	20.5	20.0	12,754	27,694	39,720
Iowa	21.0	21.5	23.5	35,527	34,338	50,408
Mo.	18.1	14.0	13.0	17,372	25,538	26,416
N. Dak.	11.4	13.5	13.0	179	310	1,105
S. Dak.	14.2	18.0	16.0	541	1,568	2,816
Nebr.	20.0	18.5	21.0	820	1,942	3,990
Kans.	12.6	8.0	7.0	3,802	3,968	3,143
Del.	13.2	16.5	13.5	689	1,036	972
Md.	14.8	19.0	17.0	800	1,603	1,904
Va.	16.2	16.0	17.0	1,914	2,872	3,077
N. C.	13.8	14.5	15.5	3,559	3,814	4,480
S. C.	10.0	11.0	8.0	456	1,430	1,360
Ga.	9.1	12.0	8.0	160	600	456
Fla.	18.0	20.0	.....	216	360	.....
Ky.	16.8	13.0	18.0	1,740	1,248	1,728
Tenn.	17.5	13.5	14.0	2,200	2,025	2,450
Ala.	16.5	20.5	17.0	921	1,888	1,768
Miss.	15.2	12.0	7.0	3,333	3,000	3,325
Ark.	17.0	11.0	9.5	6,859	7,315	8,028
La.	14.2	16.0	13.0	434	640	780
Okla.	9.8	10.0	4.5	285	500	212
U. S.	19.9	18.3	18.7	230,649	262,341	324,713

Crop reporting board of USDA's Agricultural Marketing Service.

WHAT DID LESLIE SAY ABOUT— DECEMBER RYE?

Letter #518

For Monday, Sept. 27, 1954

"Last Monday you sold two units of December Rye at \$1.49 1/8. These were purchased at \$1.07 1/2 and \$1.09 7/8. The price is now \$1.39 3/4. Continue to stand aside."

Profit 1st unit \$2062. Profit 2nd unit \$1944.

MARCH WHEAT?

Letter #503

For Monday, June 14, 1954

"We suggest you raise your buying point on March Wheat to 198 1/4 for long term."

On June 18 March Wheat made its season's low of 198.

RECENT PRICE 223 1/4

PROFIT per contract \$1250

What does this week's letter say about—

JANUARY AND MARCH SOYBEANS? MARCH MEAL?

SUBSCRIBE TODAY—1 year \$85 6 months \$50 5 weeks \$10

The Leslie Analytical Organization, 1227-B Bryden Rd., Columbus 5, Ohio

PRESS

September Is Outdated

THERE was a time when the September soybean option was distinctive and useful, but that day has passed with the changes in climate. Formerly a trader knew what he could expect if he took delivery, but he doesn't anymore. September used to spell old crop beans only; now it's a maverick.

Trading in futures contracts for different delivery months originally started because there was a need for such hedging. With futures trading on the Chicago exchange, at least, accompanied by a constantly lessening cash movement, it becomes increasingly important that trading months in the years ahead must reflect a definite need and function—and most certainly September soybeans does not do so now. Having extra options on the board so that extra commissions can be earned for switching options is economically unsound.

Instead of a September soybean futures market, an adjustment to August, with accompanying shifts at other seasons, would doubtless serve the greatest number. From the emphasis that some members place on the futures trading volume,

wholly ignoring the real need of cash transactions upon which the futures market supposedly is entirely dependent, outsiders might judge that the pits are cozy little monopolies belonging solely to the pit brokers.—*Grain and Feed Journals*.

Rail Rate Hearing

HEARING was held Sept. 13 in the offices of the Southern Freight Association at Atlanta, Ga., on a railroad proposal to increase freight rates on direct shipments to Gulf ports for export from points in the Mississippi Valley east of the river.

The Southern Freight Association proposed a rate of 25 cents per 100 pounds—the same as on corn—on soybeans shipped from Alabama, Kentucky, Mississippi and Tennessee points. This would be an increase of from 1 to 5½ cents a bushel.

Midsouth Soybean and Grain Shippers Association had a representative at the hearing to protest the increase. Geo. M. Strayer, American Soybean Association secretary-treasurer, predicted any rate increase will divert more of the export business away from the rails to truck and barge lines.

County Estimates

County estimates of soybean pro-

duction for 1952 and 1953 have been issued by the Agricultural Marketing Service of the U. S. Department of Agriculture, Washington 25, D. C.

Acreage, yield and the production harvested for beans in 20 principal states are included. These states comprise nearly 99 percent of total U. S. production in 1953.

For your copy write the Agricultural Marketing Service or Soybean Digest, Hudson, Iowa.

To Dannen Mills

Dr. Chase Wilson, for the past three years professor of animal husbandry, has been named research

director of Dannen Mills of St. Joseph, Mo. Doctor Wilson, a native of Kansas, will also be in charge of the Dannen research farm east of St. Joseph on U. S. Highway 36. The new director received his bachelor's degree from Kansas State College, his master's degree from the University of Wisconsin and his doctorate from the University of Missouri.



Chase Wilson

**OVER 130 MILLION BAGS WILL BE
USED TO PACK AND SHIP SOYBEAN
MEAL THIS YEAR - - -
PACK AND SHIP YOUR MEAL IN
CHASE BAGS
COTTON • BURLAP • MULTIWALL PAPER**

**You Can't Put
Your Product
in Better Bags!**



PUBLICATIONS

FATS STUDY. Most housewives in the United States use at least three different kinds of fats and oils for their home cooking—usually a combination of butter and two other fats such as vegetable shortening, lard, shortening compound, cooking oil, or margarine, according to a report released by the U. S. Department of Agriculture.

The study, designed to assist processors and distributors in expanding the market for these products of agricultural origin currently in abundant supply, covers the number of different fats used by homemakers, how they are used in cooking, and the reasons homemakers like or dislike them for particular cooking uses.

Most homemakers — more than eight in every ten interviewed during the course of the study—reported that they used some butter during the year prior to interview. Almost as many said that they had used vegetable shortening; six in ten had used margarine; five in ten had used lard, and the same number used cooking oils.

Data contained in the report are expected to be of particular value to processors and distributors of edible fats and oils. The study on which the report is based was made by the market development branch of the Agricultural Marketing Service, USDA, with the use of Agricultural Marketing Act funds.

Copies of the report, Homemakers' Use of and Opinions about Fats and Oils Used in Cooking, are available

from the marketing information division, Agricultural Marketing Service, U. S. Department of Agriculture, Washington 25, D. C. Detailed appendix tables are being printed as a supplement to the report and should be available within a short time.

GREASE. The National Renderers Association has received a report summarizing the results of the first year of work in connection with the tallow and grease research project which it has sponsored jointly with the U. S. Department of Agriculture at the Eastern Utilization Research Branch in Philadelphia.

Frank Wise, association secretary, said arrangements had already been completed by the association to continue the project for another year.

Copies of the report may be secured from the association headquarters at 1424 K St. N. W., Washington, D. C.

FATS, OILS. Production of fats from domestic materials has increased over 40 percent since pre-war. The postwar world shortage of edible fats has been overcome and with petroleum derivatives replacing fats in some industrial uses, the U. S. has a surplus of fats over domestic needs. Inventories have increased. The government, through price programs, has acquired substantial stocks of cottonseed oil, linseed oil and butter.

Recent trends offer little promise of change in the high-inventory posi-

tion unless extraordinary measures are taken.

Lard output, now relatively low, will rise again beginning next fall. And the effect of 1954 cotton acreage restrictions on oil production will be more than offset by increased soybean and flaxseed plantings.

Although exports of low-priced tallow and greases have been gaining, exports of edible oils have declined. Domestic disappearance of fats in food uses is rising in line with population growth, but industrial use is falling, particularly in the manufacture of soap.

With an abundant supply of certain inedible fats available, there is need for chemical discovery to support new uses and for expansion of outlets in markets heretofore little used.

ECONOMIC STATUS OF THE FATS AND OILS INDUSTRY. By Robert M. Walsh, Agricultural Marketing Service, U. S. Department of Agriculture. Journal of the American Oil Chemists' Society, July 1954, pages 27-29.

FATTY ACIDS. There's a trend toward fatty acids. Touting the advantage over fats and oils in quality control, makers are selling their customers on the precision with which they can control the properties of their products.

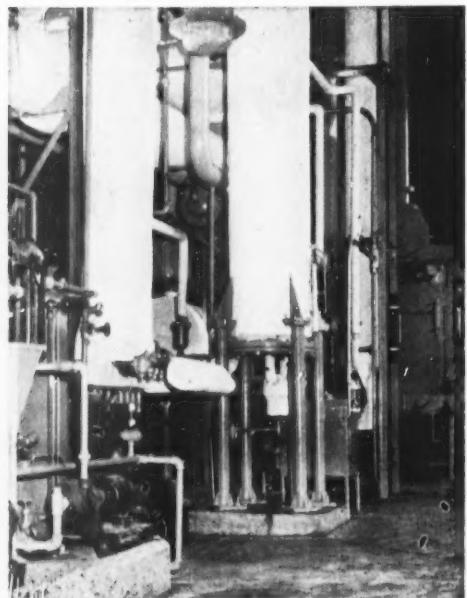
Sources of fatty acids include animal fats, fish and marine oils, vegetable oils and soybean and cottonseed soapstocks. Uses of the latter include soaps, polishes, alkyd resins, protective coatings, floor coverings, greases, flotation agents, and rubber compounding.

A good guess is that soaps consume about a third of all the vegetable fatty acids, a share second only to that taken by protective coating products (paints, varnishes and alkyd resins).

Textile finishers probably use the widest array of soaps. They buy or prepare a large number of fatty acid mixtures and derivatives for wetting, softening and scouring agents.

Although fatty acids don't serve as many functions in the rubber industry as in the textile, they do have three principal uses in rubber compounding — activation, acceleration and softening.

ACIDS SUSTAIN FATS MARKET. Chemical Week, July 17, 1954, pages 85-86.



BOOST SOYBEAN PROFITS . . . AT LOWER COST!

Installation of a low-cost Crown solvent extraction plant means more business . . . better business for your community. With one of these simple, easy-to-maintain units, soybeans can be economically processed right in their growing area into high protein feed for livestock and poultry. Thus, you save money by eliminating freight and handling charges for the processed beans . . . plus saving on freight charges on the return of the meal.

Write today for descriptive folder and complete information.

CROWN
IRON WORKS CO.
1235 Tyler St. N.E.
Minneapolis 13, Minn.



For a complete list of books on the soybean crop and industry and related subjects drop a postcard to Circulation Department, Soybean Digest, Hudson, Iowa. Copies of books and other publications listed on our pages will be obtained for readers when requested, if possible.

SOYBEAN DIGEST

MEAT FAT. Armour & Co., as a producer of both meat and vegetable fats, has become interested in the possibilities of utilizing its meat fats in the production of frozen desserts or mellorene.

The company's tests have demonstrated that the right type of meat fat produced a highly acceptable product by regular commercial routine, and also offered positive resistance to churning-out during freezing, which is a problem with other fats.

MEAT FAT IMPROVES FROZEN DESSERT. By M. E. Hull, Armour & Co., Chicago. Food Engineering, August 1954, page 133.

GEORGIA. The need for oil and high protein feed, plus a ready market for the beans, has encouraged the growing of soybeans in Georgia and the acreage is expanding.

Yields have been fair, and with improved varieties and better production practices, soybeans will compare favorably in income with other crops grown in the state.

The crop will grow on most types of soil in Georgia but give best yields on fertile loams to sandy loams. Light sandy soils of south Georgia are not as well adapted to soybeans as heavier types in the state.

Varieties recommended by the State Experiment Station include:

Hay varieties: Yellow Gatan, Gatoan, Otootan, Acadian and CNS 4.

Oil varieties: Ogden, Acadian, Roanoke, Jackson, Dorchsoy 31, JEW 45, CNS 4, and Woods Yellow.

Edible varieties: Easycook, Rokuson, Seminole and Woods Yellow.

SOYBEANS IN GEORGIA. Circular 310. By J. R. Johnson, assistant agronomist, University of Georgia College of Agriculture, Athens, Ga.

MISCELLANEOUS

WATCH FOR HUNGER SIGNS IN SOYBEANS. By H. J. Mederski, Ohio Experiment Station, in the Ohio Farmer, Mar. 20, 1954. Pages 30-31.

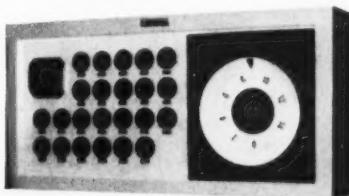
NEW LOOK AT AMINO ACID FIGURES. Agricultural Research, March, 1954. Agricultural Research Service, U. S. Department of Agriculture, Washington 25, D. C.

NEMATODES—CROP NEMASIS. Agricultural Research, July 1954, pages 8-9. Agricultural Research Service, U. S. Department of Agriculture, Washington 25, D. C.

HOUSEFLY CONTROL ON THE FARM. Circular 722. Extension Service, University of Illinois College of Agriculture, Urbana, Ill.

CHECKING storage temperatures saves grain . . . saves money

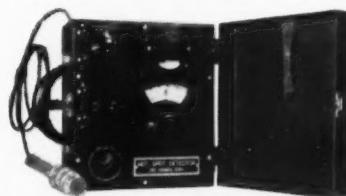
The **HOT SPOT** Temperature Measuring System keeps operators in instant, accurate touch with the temperature of grain stored in mills, elevators and country stations. Proved by use throughout the world, this equipment protects grain by giving immediate warning of temperature rise that always accompanies moisture pockets, mold or germ action, or insect damage. Several different systems are available:



Minneapolis-Honeywell instrument



Minneapolis-Honeywell instrument



Minneapolis-Honeywell instrument

Switch-controlled unit lets you scan through temperature stations that give measurements at every 6-foot level in bins. The measuring instrument is a Minneapolis-Honeywell *Electronik* Potentiometer, developed especially for the Hot Spot system. It's highly accurate and sensitive . . . responds to temperature changes as small as one-fifth of a degree Fahrenheit.

Automatic scanning system, ideal for "office control," automatically switches through 18 points in a 108-foot bin, every 72 seconds. Coded lights show location of each temperature station. A sensitive Minneapolis-Honeywell *Electronik* Potentiometer indicates temperature. System can also be operated manually.

For spot checks, this Portable Potentiometer . . . developed by Minneapolis-Honeywell for *Hot Spot Detector, Inc.* . . . can be carried readily around the storage site. Just connect the bin temperature cable to the jack plug, turn a dial, and read temperature.

Systems are available on purchase or lease arrangement. For complete information, write to us today.



Instruments, for Hot Spot Detector Systems, are made exclusively by
Minneapolis-Honeywell . . . *First in Controls*

NEW PRODUCTS and SERVICES

SOLVENT PLANT. A solvent extraction plant with pre-fabricated sections for simplified, low-cost installation has been introduced by Crown Iron Works Co., Inc.

Highly flexible in its operation, the Crown plant is adaptable to continuous processing of many oil-bearing materials.



Continuous vent gas scrubber and waste water reboiler hold solvent losses to a minimum.

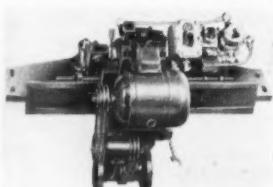
The manufacturer also claims that all moving parts can be cleaned from the outside, thus reducing maintenance and upkeep time and costs.

For a complete descriptive brochure, "Crown Solvent Extraction Plants," write Soybean Digest 10a, Hudson, Iowa.

ROLL GRINDER. A new, automatic, portable roll-grinder that grinds rolls efficiently and at lower cost while they remain in the machine has been introduced by Quality Industries, Inc.

The roll grinder was specifically designed to dress flaking rolls and will eliminate costly time consuming removal of the rolls from equipment, crating and shipping of rolls and the need for an extra set of replacement rolls. Also, it reduces machine downtime.

For full information write Soybean Digest 10e, Hudson, Iowa.



TECHNICAL PRODUCTS. Brown-Allen Chemicals, Inc., announces its newly-revised technical products book. It covers a greatly expanded line of processed marine and vegetable oils in specialty vehicles for the paint, varnish, printing ink, floor coverings and foundry industries.

A novel feature of this publication is a brief biographical sketch of each of the key personnel together with statements on the company's policies.

For a copy write Soybean Digest 10b, Hudson, Iowa.

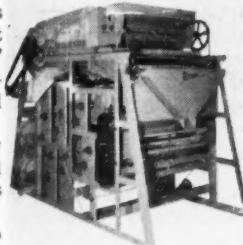
CLEANER. This new Super 2248-DS is the new all-steel version of the wood-frame Clipper cleaner of the same model number. The latter will continue to be available.

A. T. Ferrell & Co. emphasizes that this entire mill is built of steel and that it is not to be mistaken for "armored" (metal over wood) or a combination angle iron frame and wood design.

The 2248-DS does quality market cleaning on beans and other products at 3,500 bushels per hour.

A smaller model is also available in either all-steel or wood-frame construction.

For full information write Soybean Digest 10f, Hudson, Iowa.



COMBINE. Specialized construction adapts the new Model "75" Case combine for a wide variety of grain and seed crops with equal efficiency. It is available for combining this year's crop of soybeans and for all combining operations in 1955.



It takes a seven-foot swath, just right for soybeans and other crops grown in similar rows. The new cutter bar has strong, slender steel guards that go through rank, tangled growth without clogging, and they provide 30 percent more cutting area.

"Air-lift" cleaning features a positive-flow fan of variable speed, and all combinable crops from heavy beans to light, fluffy seeds can be harvested without waste.

For further information write Soybean Digest 10d, Hudson, Iowa.

CROP DRYING. Members of the crop drying equipment industry active on committee program assignments recently completed a publication on getting better feed and better prices for grain with drying equipment.

The newly-published booklet, although primarily planned for use by members of the Crop Dryer Manufacturers Association, is being offered to other interested agencies at 6 cents per copy in lots of 1,000 or more, and at 7 cents each in smaller lots.

For further information write Soybean Digest 10c, Hudson, Iowa.

MEMBER: CHICAGO BOARD OF TRADE • NEW YORK PRODUCE EXCHANGE

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VEGETABLE OILS

BOARD OF TRADE BUILDING • 141 WEST JACKSON BOULEVARD • CHICAGO 4, ILLINOIS • HARRISON 7-3612

SOYBEANS . . . A BILLION-DOLLAR INDUSTRY

Every Processor Reads the

Soybean Digest

Archer-Daniels-Midland Co.
plant at Mankato, Minn.



Two hundred and thirty-three plants in 28 states, as reported by the Soybean Blue Book, process the nation's annual 300-million-bushel soybean crop.* These 233 plants produced over 5.5 million tons of soybean oil meal in 1953; and 2.5 billion pounds of soybean oil! The meal undergirds the tremendous livestock feed industry; and the oil is the leading ingredient of quality foods such as shortening, margarine and salad oils. The national economy is vitally dependent on the U. S. soybean crop!

Many plants also refine soybean oil or manufacture livestock feeds, each an immense operation.

A large capital investment is required for each of these soybean processing plants. Average appraisal value is about \$1 million, with some plants worth many millions. Capi-

tal investment is figured at over \$1 per bushel processed. New plants are being erected each year and older plants are converted rapidly to more efficient methods. Much equipment needs regular replacement.

The Soybean Digest goes into every soybean processing plant in the nation, and is read by the key personnel in these plants, the men who make the decisions and do the major purchasing.

Soybeans are a big crop. The annual value of the 300-million-bushel crop as it goes to market is close to a billion dollars. Value of the finished products is many billion dollars. Value of the equipment needed to produce, handle and process it runs into billions.

*Minus about 50 million bushels for export and seed.

Soybean Digest circulation is concentrated in the leading soybean production areas but the Digest is read in 43 states, Washington, D. C., and many foreign countries. You will find it closely scanned by producers, processors, grain handlers and others interested in soybeans.

ADDRESS INQUIRIES TO
The SOYBEAN DIGEST

OCTOBER, 1954

HUDSON
IOWA



GRITS and FLAKES . . . from the World of Soy

- ◆ John B. Hill has been appointed sales manager of the inoculant division for Agricultural Laboratories, Inc., Columbus, Ohio. He was transferred from the special products division to the inoculant division last fall.
- ◆ The Woodson-Tenent Laboratories, Cairo, Ill., has been appointed official chemist for the Cairo Board of Trade.
- ◆ E. M. Poirot, Poirot Farms, Golden City, Mo., has been in the hospital since June with head and leg injuries suffered when a large tree limb struck him from a fall of 50 feet.
- ◆ George P. Heffelfinger is the new head of Russell-Miller Milling Co., Minneapolis, succeeding M. F. Mulroy, who recently resigned.
- ◆ Cecil W. Glassel, director of education and nutritionist for Dannen Mills, St. Joseph, Mo., died Sept 20 in a local hospital. He had been connected with the Dannen firm for the past 15 years and was largely responsible for the development of the 247-acre Dannen research farm east of St. Joseph. He was also secretary-treasurer of the Woodbury Chemical Co.
- ◆ Cargill, Inc., Minneapolis, has announced it will lease and operate a 2.5-million-bushel terminal grain elevator to be built at the new public port facilities at Baton Rouge, La. The elevator will cost about \$3.1 million and will be leased by Cargill for 20 years.
- ◆ The board of directors of the A. E. Staley Manufacturing Co., Decatur, Ill., elected A. R. Staley, son of the company founder, a vice president. He will be in charge of the company's customer relations. He has been a member of the board of directors since 1941. He is a younger brother of A. E. Staley, Jr., company president and board chairman.
- ◆ C. W. Graham, Swift & Co. oil mill department, Chicago, has been transferred to the oil mill department, southern division office in Memphis, replacing J. B. Crosslin, who has been made manager of the Swift mill at Coleman, Tex.
- ◆ Brown-Allen Chemicals, Inc., announces the appointment of Geo. A. Rowley Co., Inc., as its exclusive sales representative in the Philadelphia area. Rowley has been in business for over 30 years representing raw material manufacturers to the paint, rubber, textile, plastic, soap, printing ink, floor covering and allied industries.
- ◆ Approximately 70 faculty members from leading colleges in 29 states and Canada took part in a three-day symposium in Chicago Sept. 8-10 to study operations of the nation's grain marketing system and commodity exchanges. This was the seventh in a series of annual conferences sponsored by the Chicago Board of Trade.
- ◆ J. M. Swetland, a veteran in the farm machinery field, has been named manager to the north central regional sales office of Ford Motor Co.'s tractor and implement division as a part of its nationwide expansion program. Swetland's office located in the Roanoke building, Minneapolis, was opened about Oct. 1.
- ◆ Arkell & Smiths, Canajoharie, N. Y., has acquired the bag-making plant at Hudson, N. Y., formerly owned by Union Bag & Paper Corp., which will continue to act as a selling agent.

New Plant Managers



Wayne S. Zerkel



Wendell Mann

The appointment of new managers at three company plants and the promotion of one plant manager to the newly created post of production engineer was announced by Central Soya Co. and McMillen Feed Mills of Fort Wayne, Ind.

Wayne S. Zerkel, manager of the Memphis, Tenn., plant for the past seven years and one of the original employees of the company, has been promoted to the new post of production engineer. He will have company-wide responsibilities involving all phases of feed manufacturing, methods and equipment.

Robert W. Fay, manager of the Marion, Ohio, plant for the past five years, has been promoted to manager of the company's new plant at Chattanooga, Tenn. Now under construction, the new plant will include soy-



George R. Walter



Robert W. Fay

WILBUR-ELLIS COMPANY

**Brokers of Soybean Oil and Proteins
COMPLETE DOMESTIC AND FOREIGN COVERAGE**

105 West Adams St., Chicago, Ill.
Telephone: ANDOVER 3-7107

New York

San Francisco

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Seattle

"Looks like another good SOYBEAN YEAR!"

NEXT YEAR will be a good year for soybeans, too.
And so will the year after that.

Back in 1929, when Archer-Daniels-Midland opened its first soybean processing plant, the nation's entire soybean crop amounted to only 8.7 million bushels.

This fall, America's farmers are preparing to harvest over 300 million bushels!

Amazing?

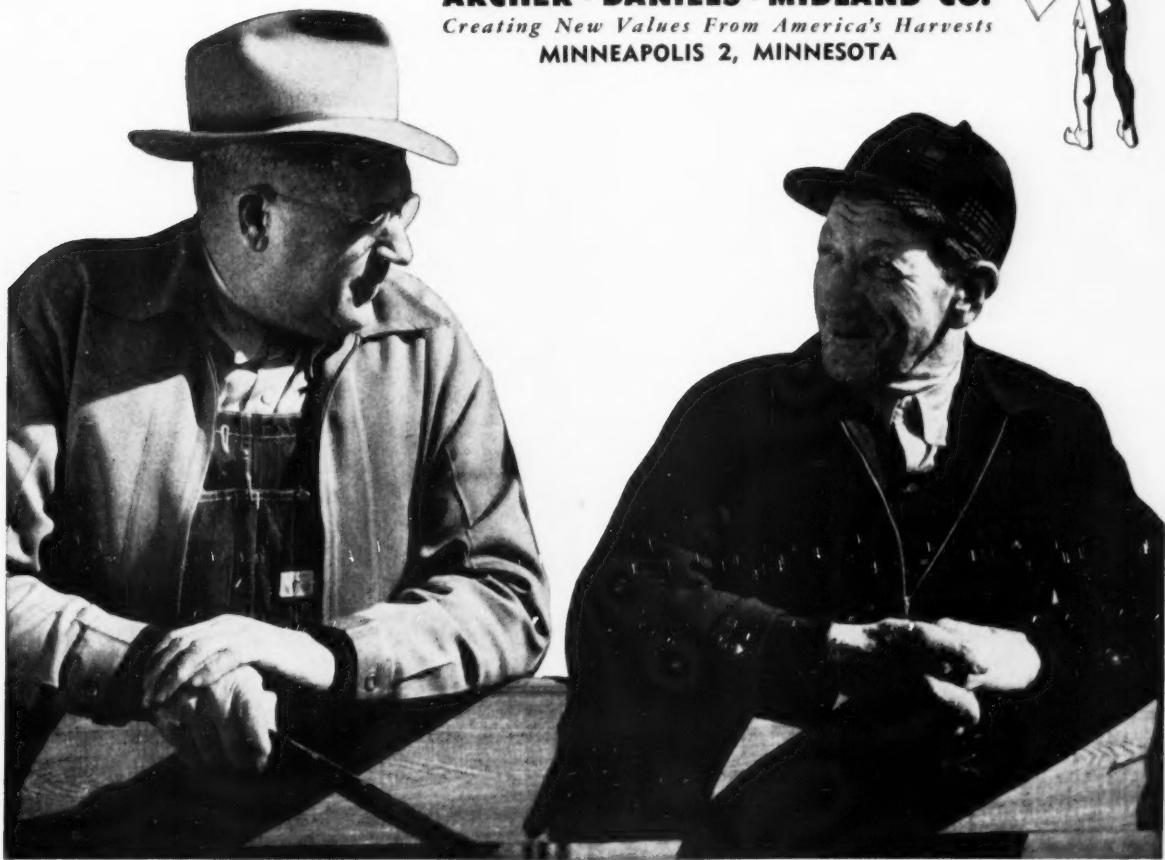
Certainly . . . for this spectacular increase could not have occurred if the demand for soybeans had not kept pace. And Archer-Daniels-Midland has played an important part in building this demand.

Scores of new products have been created in ADM's famous research laboratories, processed at a lower cost in ADM's giant soybean plants, and distributed through the skill of ADM's aggressive sales and marketing organization.

This is how markets are built . . . and this is how they continue to grow. This year . . . this month . . . this week . . . exciting new soya products are being tested and perfected by ADM scientists.

Yes, this will be a good year for soybeans . . . and we at ADM predict that many more good soybean years lie ahead.

ARCHER • DANIELS • MIDLAND CO.
Creating New Values From America's Harvests
MINNEAPOLIS 2, MINNESOTA



- ◆ S. M. Spencer, supervisor of textile bag sales for Bemis Bro. Bag Co., has been appointed assistant manager of the company's St. Louis plant and sales division. He will be succeeded as supervisor of the textile bag sales by W. J. Ray, who has been acting as his assistant.
- ◆ The annual meeting of the Tennessee Seedsmen's Association will be held Feb. 7 at the Andrew Jackson Hotel in Nashville, Tenn., C. Hays Hollar, secretary, Newbern, Tenn., announces. President of the association is Cecil Moss, Cherry-Moss Grain Co. Union City, Tenn.
- ◆ The Chicago Board of Trade and New York and New Orleans Cotton Exchanges began operation of a new combined continuous quotations ticker service to West Coast and Rocky Mountain areas Oct 1. The new ticker service will carry continuous price quotations for all commodities traded at the exchanges.
- ◆ John A. Peters, former vice president and treasurer of the Glidden Co., has retired, according to an announcement by Dwight P. Joyce, president. He served the company for more than 33 years.
- ◆ Clyde C. McInnes, Chicago manager of American Mineral Spirit Co.'s solvent extraction division, was honored at a banquet on Clyde "Mac" McInnes night commemorating his 25th anniversary with Amsco. The dinner was a feature of Amsco's sales meeting at the Hotel Galvez, Galveston, Tex., Aug. 23-27.
- ◆ The appointment of Walter M. Jordan as territory manager of the A. E. Staley Manufacturing Co.'s formula feed sales department in northeastern Illinois has been announced. Jordan, who has been an assistant territory manager in central Illinois, succeeds Dean Conrad who resigned to accept a position with the DeKalb Agricultural Association.
- ◆ New representatives to handle sales and service for Schutte Pulverizer Co., manufacturer of hammermills and parts, are: Riza Manufacturing Co., Cleburne, Tex., covering Texas, Oklahoma, Louisiana and Arizona; and Winona Attrition Mill Co., Winona, Minn., covering Minnesota, Wisconsin and Iowa.
- ◆ Lucian C. Sprague has been appointed consulting engineer for Archer-Daniels-Midland Co. He was formerly chairman of the board and president of the Minneapolis & St. Louis Railway Co. He will specialize in transportation problems.
- ◆ Russell F. Jagoditsch has been named chief chemist at the general laboratory of Chase Bag Co. at Chagrin Falls, Ohio. He has been head of the quality control department at the company's paper mill for the past two years. Jack W. Means has been appointed assistant chief chemist. He has been active in the Chase Bag Laboratory since 1952.
- ◆ Appointment of John E. Capizzano as Eastern sales manager of American Mineral Spirits Co. has been announced by E. M. Toby, Jr., president. Capizzano has been with Amsco since 1934. At the same time James V. McLaughlin was named assistant sales manager of Amsco's Eastern division.
- ◆ "Efficiency and Automatic Operations Mark New Allied Mills Feed Plant" was an article covering Allied's Mason City, Iowa, plant in July 24 *Feedstuffs*.
- ◆ Richardson Scale Co., Clifton, N. J., announced the opening of a new branch office in Memphis, Tenn., and the appointment of Gus Baurfind as branch manager. Territory will include Arkansas, Mississippi, Louisiana and western Tennessee.
- ◆ According to Robert C. Liebenow, secretary, the directors of the Chicago Board of Trade have voted to eliminate Lincoln's birthday, Columbus day and Armistice day as holidays on the exchange.

bean processing, feed manufacturing and grain storage operations and is slated for completion early in 1955.

Wendell Mann will become the new manager at Marion. His experience includes assistant manager at the Gibson City, Ill., plant for the past two years, and staff positions at both the Decatur, Ind., and Marion solvent extraction plants.

George R. Walter, assistant to the manager at Decatur for the last three years and previously superintendent of maintenance at Harrisburg, Penn., will be the new manager of the Memphis plant. All promotions are effective immediately.

Private Consultant

Edward M. James, past president and member of the governing board of the American Oil Chemists Society, has resigned his position as technical advisor of Lever Brothers Co. to enter the field of private consulting work.

A specialist in edible oil refining and processing, Mr. James terminated his 17-year association with Lever Aug. 31.

Mr. James served as 43rd president of the Oil Chemists, taking office in 1952.

Before joining Lever Brothers Co. he was associated with the Procter & Gamble Co. and the Sharpes Specialty Co. In both organizations, his work was primarily concerned with vegetable oil refining processes.

He joined Lever in 1937 and was appointed technical advisor in 1953.

A holder of several patents relating to refining processes, he has contributed various articles on centrifugal separation, continuous refining and allied subjects to technical journals.



Edward M. James

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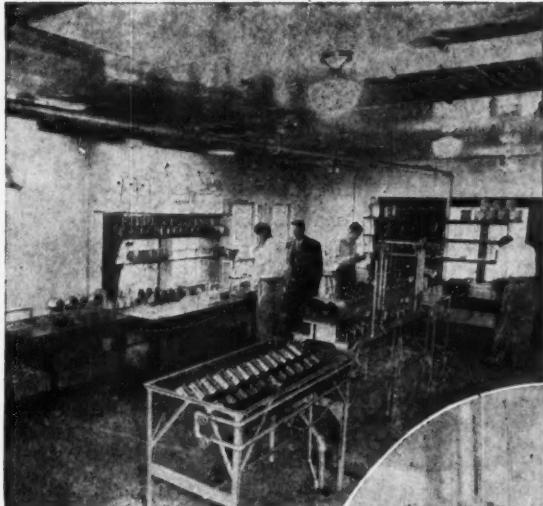
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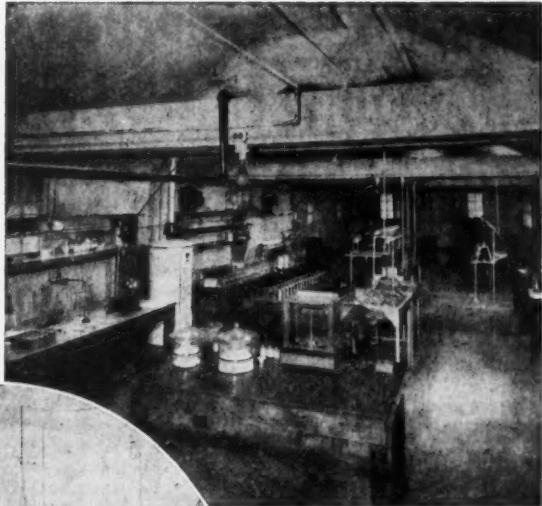
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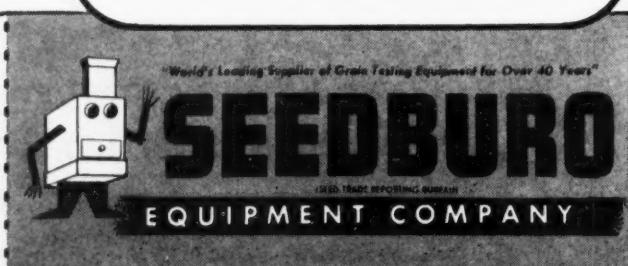
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WASHINGTON DIGEST

Total Allotments Are Out



By PORTER M. HEDGE
Washington Correspondent for
The Soybean Digest

CONTROLS. The diverted acres program has been junked, for all practical purposes. There is no limit on the number of acres you can plant to soybeans next year—without risk of losing price support on any crop.

Total allotments are eliminated. In their place are restrictions placed on growers of commercial vegetables, potatoes, and dry edible beans.

Acreage planted to these crops is to be limited to the 1952-53 average. Otherwise, price support is denied on any crop produced on the farm. However, this restriction applies only to farmers who have one or more basic crop allotments.

Growers with no basic crop allotments are not affected.

If you grow soybeans and potatoes, for example, you can plant all the potatoes you want to next year without losing price support on soybeans. But if you grow potatoes, soybeans, and wheat, you must keep potato acreage within the 1952-53 average or lose eligibility for support on both soybeans and wheat.

An exception will be made in a case of this kind to the producer who has no more than three acres.

Cross compliance is also continued next year, but only on the basic crops. That is, if you exceed any of the basic crop allotments set for your farm next year, you will lose eligibility for price support on any crop raised.

There is one exception to this general rule. Small wheat producers are allowed to plant up to 15 acres of wheat without risk of losing their price support for other basic crops.

This is intended mainly for the South and East where growers may not be so much interested in price support for wheat, but don't want to endanger their support for cotton or tobacco.

The pinch on cross compliance will come mainly in the Cornbelt, where a grower has enough wheat to be concerned about price support, but wants more corn for feed. It also may be felt in the few areas where cotton and tobacco are produced and corn is raised commercially. There are 133 counties in the commercial corn area in states outside the Cornbelt.

There is no doubt that abandonment of total allotments will mean an increase in soybean plantings in 1955 over acres that would have been planted had the program gone through.

Total allotments would have cut plantings back to somewhere around 17 million acres. With total allotments out the window, next year's soybean acreage is unofficially estimated at around 20 million acres, about the same as this year.

Harvested acres would run about 17.5 million. With average weather, this would mean a crop of well above 300 million bushels for two years in a row.

EXPORTS. Sale of \$40 million worth of flue-cured tobacco to the British is reported to be the first

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transaction being negotiated by the U. S. under the new agricultural trade development act.

This is the law which permits use of \$1 billion of CCC funds for disposal of agricultural surpluses in the next three years. The President recently gave the Department of Agriculture authority to handle \$700 million of these funds, to be used for exchange of surpluses for foreign currencies, similar to the old "Section 550" program of the Foreign Operations Administration.

FOA is given direction over handling of the \$300 million in funds to be used as outright grants of aid to countries in need. FOA also has \$350 million of its own funds with which to dispose of farm surplus crops, taking foreign currencies in exchange.

A preliminary list of "surplus" crops has been drafted, though hadn't been made public at press time. Release of the list is held up pending a decision by Foreign Agricultural Service people as to just what constitutes a surplus crop under the new law.

Soybeans are not expected to be on the surplus list as such, though a small volume might be moved via this program.

MEAL. Preliminary estimates based on the September crop report indicate the supply of oilseed meals will be at least as large as last year, despite a drop in the cotton crop.

The increase in soybeans more than offsets the cotton decline.

Using rough estimates of the prob-

able crush and outturn, a supply of around 5.8 million tons of soybean oil meal is indicated. Cottonseed meal may be down to around 2 million tons. Estimates of flaxseed, peanut and copra meal bring the total to a little more than 8.6 million tons—about the same as last season.

EXPORTS. U. S. exports of fats, oils and oilseeds in the marketing year which closed Sept. 30 set a new record, according to Foreign Crops and Markets of U. S. Department of Agriculture.

In the nine-month period, October to June, exports in terms of oil equivalent totaled 2.6 billion pounds. This was an increase of 52 percent from the 1.7 billion pounds exported in the corresponding months of 1952-53.

The previous marketing year record was in 1951-52 when the total quantity exported was nearly 2.3 billion pounds.

The major contributors to the new record volume of exports were soybeans, cottonseed oil, edible tallow and greases, and linseed oil.

Chinese Production

CHINESE regional plans for 1954 call for increased production of oilseeds, according to information available to the Foreign Agricultural Service of the U. S. Department of Agriculture.

Important parts of the production will be siphoned off for flood relief purposes, it is believed, despite pressure to export as much as possible.

As a result, it is expected that the amount available for export in 1954 will be only moderately in excess of 1953.

Soybeans are reported to be in very good condition. Early reports said production was expected to be increased by 12 percent. On this basis, total soybean output in 1954 would be around 372.4 million bushels compared with 332.5 million bushels in 1953.

Suez Canal Movement

The northbound movement of soybeans through the Suez Canal in January-June of this year, nearly all of which were of Chinese origin, totaled 9,670,000 bushels, or a decrease of 6 percent from the 10,330,000 bushels which passed through the Canal in the first half of 1953, according to the Foreign Agricultural Service.

The passage of soybeans through the Canal in the first six months probably represents the bulk of the 1954 northbound movement.

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IN THE MARKETS

FACTORY USE VEGETABLE OILS for June and July as reported by Bureau of the Census (1,000 lbs.)

FACTORY CONSUMPTION OF VEGETABLE FATS AND OILS, BY USES, DURING JULY 1954

	Edible products—			Inedible products—				
	Shortening	Margarine	Other edible	Soap	Chemicals	Paint and varnish	Lubricants and greases	Other inedible
Cottonseed, refined	14,012	3,177	1,466	45	95	527	9	5,496
Soybean, crude								658
Soybean, refined	25,073	4,883	8,941		5,411			
Hydrogenated cottonseed oil, edible		21,221	20,964					
Hydrogenated soybean oil, edible	26,236	39,415	810		65			
Fatty acid stock				342				379

SUPPLY AND DISTRIBUTION of the 1952-54 soybean crops, reported by Agricultural Marketing Service. (1,000 bu.)

	1952-53	1953-54
Carryover (1)	3,575	10,137
Production	298,052	262,341
Total supply (2)	301,627	272,478
Farm use including seed for season	25,180	28,000
Quantity remaining for processing, export, or carryover	276,447	244,478
Disappearance through July 31 (3)		
Crushed for oil or processed (4)	205,068	192,222
Exported	29,527	38,185
Total	234,595	230,407
Balance on Aug. 1 for processing, export, or carryover	41,852	14,071

(1) Stocks as of Oct. 1. (2) Imports negligible. (3) October through July. (4) It is estimated that around 5 million bushels of new crop soybeans were crushed prior to October in both 1952 and 1953. Therefore, 5 million bushels are included in the quantity crushed for both 1952 and 1953.

SOYBEANS: SUPPLY AND DISPOSITION, CROP YEAR BASIS, 1949 TO DATE

	Year beginning October						
	1949	1950	1951	1952	1953	1954	1955
Supply	(1)						
Stocks, Oct. 1	3.2	2.9	4.2	3.6	10	3	(2) 3
Production	234.2	299.3	282.5	298.1	262	304	
Total supply	237.4	302.2	286.7	301.7	272	307	
Disposition							
Crushed	195.3	252.0	244.3	234.4	204	280	
Exports	13.1	27.8	17.0	31.6	40		
Seed and feed	21.5	21.0	21.6	22.4	25	25	
Residual (3)	4.6	2.8	2	3.3			
Price per bushel							
Support	2.11	2.06	2.45	2.56	2.56	2.22	
Received by farmers	2.16	2.47	2.73	2.72	2.68		
Price and value of products							
Meal, per ton (4)	64.30	64.44	83.33	67.57	70.50		
Oil, per pound (5)	12.3	17.8	11.3	12.1	12.9		
Combined value (6)	2.77	3.26	3.12	2.95	3.10		

(1) Partly forecast. (2) Forecast. (3) Includes fed to livestock on farms other than where produced; direct use for food and statistical discrepancies. (4) Bulk, Decatur. (5) Crude, tank cars, f.o.b., Midwest mills. (6) Combined (weighted) value of products per bushel crushed. Not directly comparable with U.S. average soybean prices.

INSPECTIONS. Soybeans, inspected by grades and percent, as reported by USDA's Agricultural Marketing Service.¹

Grade	Oct.-May 1952-53	Oct.-May 1953-54	May 1953	April 1954	May 1954 (2)	
1,000 bu.	%	1,000 bu.	%	1,000 bu.	%	
No. 1	28,231	17	51,729	28	1,271	14
No. 2	77,635	46	75,767	42	4,417	50
No. 3	29,635	17	25,860	14	1,395	16
No. 4	22,193	13	18,379	10	1,067	12
Sample	11,874	7	11,361	6	659	8
Total	169,563	100	183,696	100	8,809	100
					7,346	100
					6,199	100

(1) Carlot² receipts have been converted to bushels on the basis that 1 carlot equals 1,650 bushels. (2) Of the May 1954 receipts, 5,740 bushels were black, 293,700 mixed, and the remainder yellow soybeans. Inspections of soybeans in May included 1,123,420 bushels as cargo lots, 51,284 bushels as truck receipts, and the balance as carlot receipts. Based on reports of inspections by licensed grain inspectors at all markets.

OCTOBER, 1954



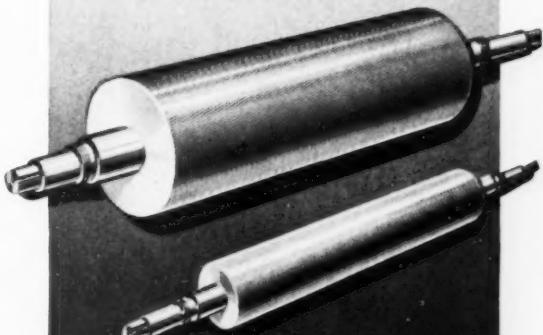
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PROTEIN PRICES. Retail protein price report for Aug. 15, by Protein Economics and Research Council.

Food	Retail price (1)	% Protein (2)	Price per lb. of protein (3) paid by consumer
Beef—			
Chuck Roast	\$0.52 lb.	16.2	\$2.95
Hamburger	0.42 lb.	16.1	2.08
Round Steak	0.89 lb.	17.6	4.89
Cheese—			
Cottage	0.24 12 oz. box	19.5	1.63
Cured Cheddar	0.65 lb.	25.1	2.19
Chicken—			
Frier, ready to cook	0.55 lb.	15.2	3.51
Eggs, Fresh	0.57 doz.	11.4	3.22
Fish—			
Haddock, Fzn. Fillet	0.50 lb.	18.2	2.74
Salmon, Canned Pink	0.53 lb.	20.5	2.49
Lamb, Leg	0.74 lb.	15.0	4.65
Milk—			
Evaporated	0.14 14½ oz. can	7.0	1.79
Fresh, Whole	0.22 qt.	3.5	2.48
Non-fat, Dry	0.40 lb.	35.6	0.97
Pork—			
Chops	0.87 lb.	13.3	6.07
Ham, Whole	0.72 lb.	14.7	4.28
Soy Flour	0.20 lb.	50.0	0.40

(1) Estimated retail prices reasonably representative of current U. S. prices on basis of spot checks and price trends. Must be adjusted to meet local conditions. (2) Percent protein, Composition of Foods, U. S. Dept. of Agriculture, Agriculture Handbook No. 8. Foods may vary appreciably from these values. (3) In estimating the price per lb. of protein in the above foods, all carbohydrates are arbitrarily calculated at 10¢ per lb. and fats at 30¢ per lb. The dollar value of vitamins, minerals and water is considered negligible on a pure chemical market basis. The balance is charged against protein. *Price change of protein from last month in cents. +Reported by soy flour processors, not by PERC.

EXPORTS. U. S. exports of soybeans and oil for July, as reported by the Foreign Agricultural Service of the U. S. Department of Agriculture.

Soybeans	975,971 bu.
Soybean oil	
Crude	397,900 lbs.
Refined but not further processed	216,482 lbs.
Refined, deodorized and hydrogenated	6,000 lbs.

Converted to a soybean equivalent basis the exports for July amounted to 1,036,326 bushels.

Oct.-May 1952-53	Oct.-May 1953-54	May 1953	Monthly Data		
			June 1953	May 1954	June 1954*
—All data in 1,000 bushels—					
2	19	1	**	2	.....
SOYBEAN IMPORTS					
25,868	36,292	2,730	1,826	1,628	1,200
SOYBEAN EXPORTS					

*Unofficial estimates based on boat loadings, inspections, and Canadian reports of U. S. imports. **Less than 500 bushels. Official U. S. Bureau of the Census data except for June 1954.

PRICES. Average price received by farmers, effective parity price and price support rates (dollars per bushel).

Average farm price	Effective parity	Average price as percent of parity	National average price support rate
Aug. 15 1953	July 15 1954	Aug. 15 1954	Aug. 15 1954
2.40	3.47	3.23	2.82
			115
			2.56
			2.22

Average farm and parity prices from Crop Reporting Board.

SHORTENING. Standard shortening shipments reported by the Institute of Shortening and Edible Oils, Inc., in pounds.

Sept. 4	6,839,875
Sept. 11	5,704,46
Sept. 18	6,773,978

Grand total of shortening and edible oil shipments for the first quarter were 968,607,000 lbs.; for the second quarter, 976,374,000 lbs.

SEED IMPORTS. Imports of soybean seed admitted into the U. S. under the federal seed act for the fiscal year July 1, 1953, through June 30, 1954, totaled 734,900 pounds, all from Canada, according to Agricultural Marketing Service.

PROCESSING OPERATIONS. Reported by Bureau of the Census for July and August.

PRIMARY PRODUCTS, EXCEPT CRUDE OIL, AT CRUDE OIL MILL LOCATIONS: PRODUCTION, SHIPMENTS AND TRANSFERS, AND STOCKS, AUGUST 1954 - JULY 1954

Products	Unit of meas. ure	Shipments and End of month Production transfers stocks					
		Aug. 1954		July 1954		Aug. 1954	July 1954
		1954	1954	1954	1954	1954	1954
Soybean:							
Cake and meal	tons	354,454	363,124	373,971	359,775	150,703	175,220
Lecithin	1000 lb.	1,763	2,081	2,744	2,170	1,767	2,748
Edible soy flour, full fat	tons	.....	.....	376	377	86	.....
Edible soy flour, other	tons	5,231	5,328	5,431	5,573	790	990
Industrial soy flour	tons	.....	2,621	2,226	2,876	.....	.....

SOYBEANS: RECEIPTS, CRUSHINGS, AND STOCKS AT OIL MILLS, BY STATES, AUGUST 1954 - JULY 1954
(Tons of 2,000 pounds)

State	Receipts at mills		Crushed or used		Stocks at mills	
	Aug. 1954	July 1954	Aug. 1954	July 1954	Aug. 31 1954	July 31 1954
U. S.	121,056	182,515	443,856	460,841	146,827	459,627
Arkansas	(1)	(1)	(1)	(1)	(1)	(1)
Illinois	38,449	64,418	169,613	187,218	69,864	201,028
Indiana	(1)	26,305	66,710	56,921	(1)	37,344
Iowa	18,754	29,723	84,814	89,054	21,094	88,054
Kansas	(1)	(1)	(1)	(1)	(1)	(1)
Kentucky	(1)	(1)	(1)	(1)	(1)	(1)
Minnesota	10,740	28,054	18,550	28,852	4,759	12,569
Mississippi	(1)	3,3	(1)	.....	1,712	1,271
Missouri	(1)	(1)	(1)	(1)	(1)	9,873
Nebraska	(1)	(1)	(1)	(1)	(1)	(1)
North Carolina	(1)	(1)	(1)	.....	(1)	(1)
Ohio	5,567	14,500	51,502	49,413	15,796	61,731
All other	57,546	19,162	52,667	49,483	32,702	47,757

(1) Included in "All other" to avoid disclosure of figures for individual companies.

SOYBEAN PRODUCTS: PRODUCTION AND STOCKS AT OIL MILL LOCATIONS, BY STATES, AUGUST 1954 - JULY 1954

State	Crude oil (thousand pounds)		Cake and meal (tons)	
	Production		Stocks	
	Aug. 1954	July 1954	Aug. 1954	July 1954
U. S.	166,116	173,189	36,859	47,297
Arkansas	(1)	(1)	(1)	(1)
Illinois	64,116	71,697	11,953	16,610
Indiana	23,405	22,026	9,570	12,307
Iowa	31,503	32,997	5,019	6,198
Kansas	(1)	(1)	(1)	(1)
Kentucky	(1)	(1)	(1)	(1)
Minnesota	7,159	10,334	3,108	4,370
Mississippi	(1)	(1)	(1)	(1)
Missouri	(1)	1,875	1,638	(1)
Nebraska	(1)	(1)	(1)	(1)
N. Carolina	(1)	(1)	(1)	.....
Ohio	18,824	18,228	3,474	3,280
All other	19,019	17,907	1,860	2,894

(1) Included in "All other" to avoid disclosure of figures for individual companies.

STOCKS. Agricultural Marketing Service's commercial grain stocks reports (1,000 bu.)

U. S. Soybeans in Store and Afloat at Canadian Markets	Aug. 30		Sept. 7		Sept. 14		Sept. 21		Sept. 28	
	Current week	Average	Current week	Average	Current week	Average	Current week	Average	Current week	Average
Atlantic Coast	94	9	8	1	0	0	0	0	0	0
Gulf Coast	93	50	94	120	120	350	120	350	120	350
Northwestern & Upper Lake	0	0	0	0	0	0	0	0	0	0
Lower Lake	1,222	790	711	634	2,002	1,522	1,522	1,522	1,522	1,522
East Central	15	12	14	73	14	73	14	73	14	73
West Central, Southwestern & Western	54	19	19	17	17	30	17	30	17	30
Pacific Coast	0	0	0	0	0	0	0	0	0	0
Total current week	1,478	880	846	895	2,534	2,534	2,534	2,534	2,534	2,534
Total year ago	1,875	1,716	1,502	1,359	1,565	1,565	1,565	1,565	1,565	1,565
U. S. Soybeans in Store and Afloat at Canadian Markets	0	0	0	0	0	0	0	0	0	0
Total current week	0	54	14	14	14	14	14	14	14	14
Total year ago	0	54	14	14	14	14	14	14	14	14
Total North American Commercial Soybean Stocks	1,478	880	846	895	2,534	2,534	2,534	2,534	2,534	2,534
Year ago	1,875	1,770	1,516	1,373	1,579	1,579	1,579	1,579	1,579	1,579

OCTOBER, 1954

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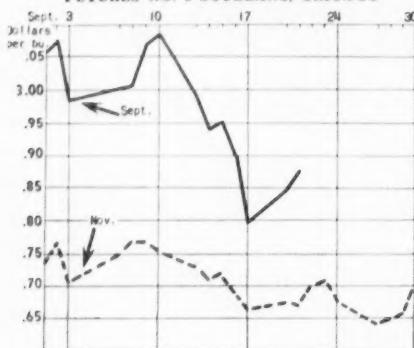
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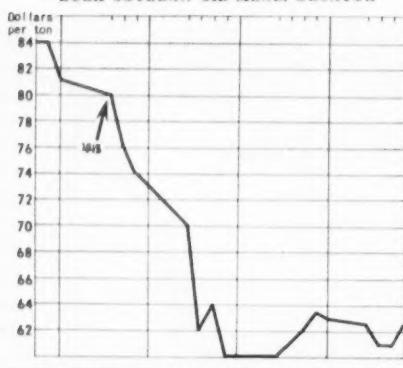
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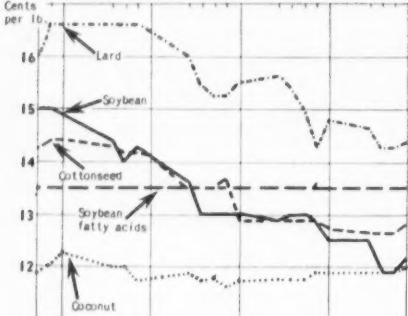
FUTURES NO. 2 SOYBEANS, CHICAGO



BULK SOYBEAN OIL MEAL, DECATUR



CRUDE VEGETABLE OILS AND LARD, TANKCARS



Sept. Markets

ACTION in September markets was an adjustment between old and new crops, and was greatly affected by the volume of September marketings.

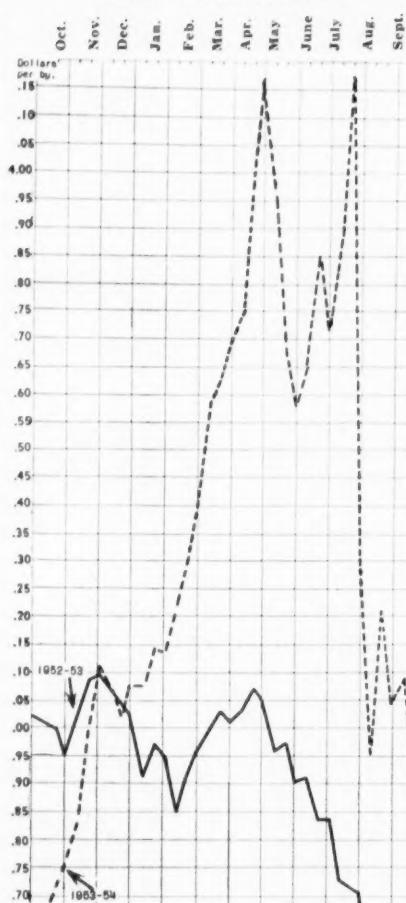
For this reason the markets were extremely sensitive to all crop and weather reports that either indicated delay or speedup of the harvest. The adjustment was rather severe with September beans closing off 50 cents from the August high; meal off \$36 since July; and oil off 2½ cents from the season's high.

Buyers of meal and oil were inclined to stand by until the new crop came on in volume.

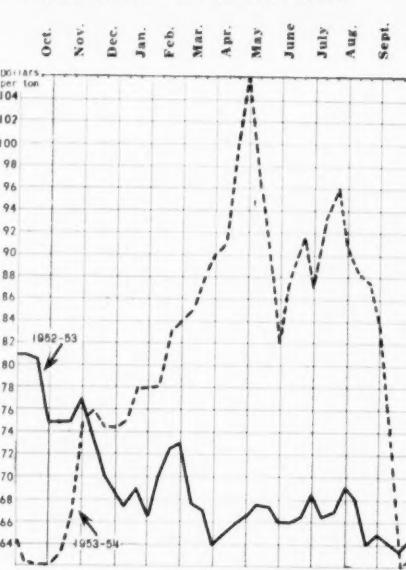
Soybeans were moving to market in volume by the third week of the month. About 1.5 million bushels were received in Chicago Sept. 27. Five million bushels were delivered on the September contract.

TRENDS AT A GLANCE

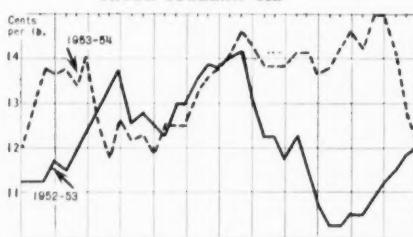
NEAR FUTURES SOYBEANS



BULK SOYBEAN OIL MEAL, DECATUR



CRUDE SOYBEAN OIL



week of Sept. 17.

There was a lack of interest in new crop meal and oil as buyers awaited the arrival of the new crop in volume. Linseed and cottonseed meal receded under the pressure of new crop soybeans.

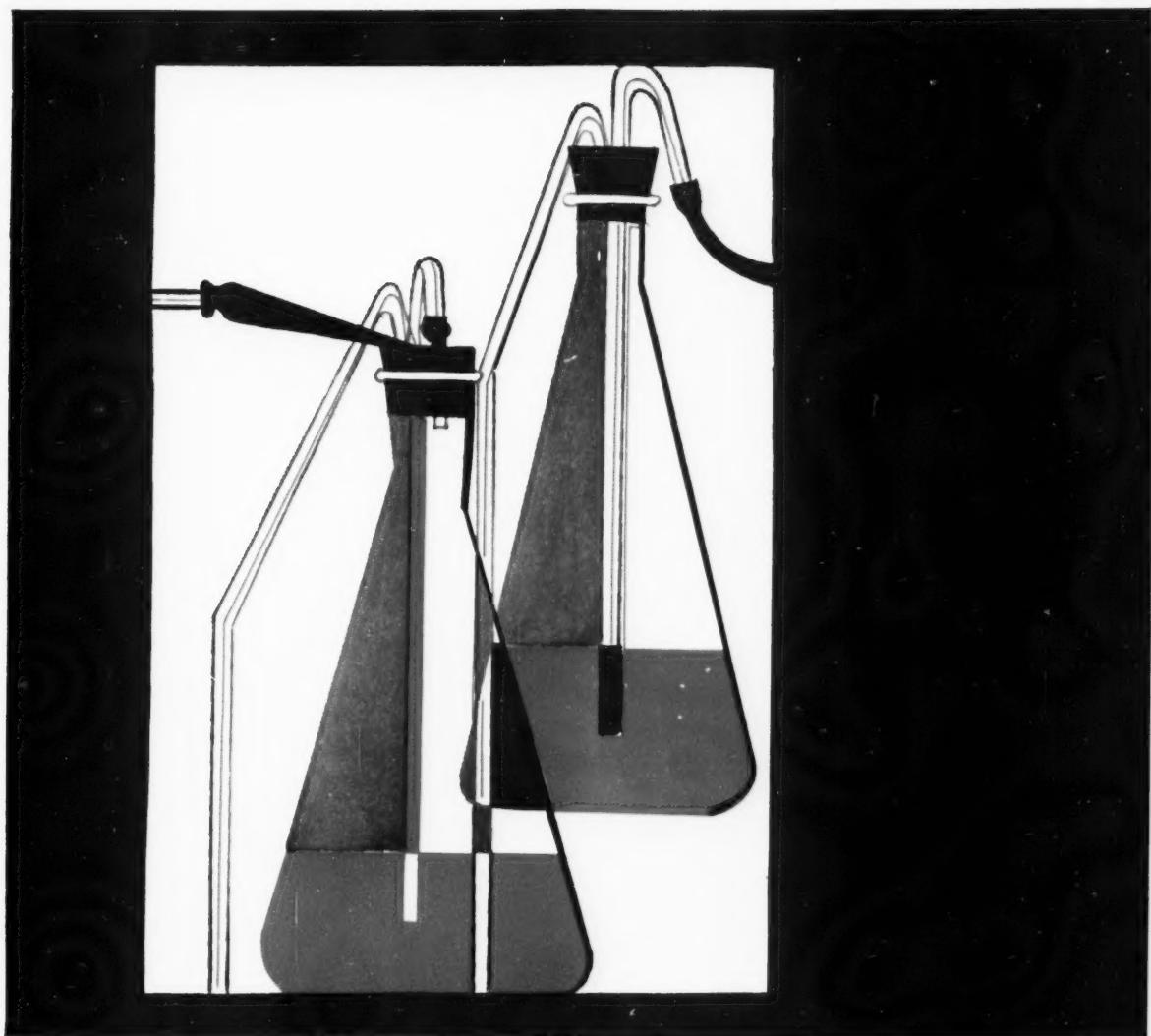
CRUSHINGS. Processing of soybeans in July totaled 15.4 million bushels, about the same as in June and compares with 16.3 million bushels in July 1953, reports Agricultural Marketing Service.

Processing October through July totaled 187.2 million bushels as against 200.1 million for the same months last season. This does not include an estimated 5 million bushels of new crop beans processed before October in both 1952 and 1953.

EXPORTS. Exports of soybeans the first 10 months this season totaled 38.2 million bushels—nearly 8.7 million more than for the same period last season, reports Agricultural Marketing Service.

SUPPLIES. Total supplies of soybeans on Aug. 1 for export, crushing or carryover totaled 14.1 million bushels compared with 41.9 million a year ago.

SOAPSTOCKS. Acid soybean soapstocks delivered Midwest declined from 7½ cents a pound to 3¾ cents in September; and raw soybean soapstocks declined from 3 cents to 2 cents.



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